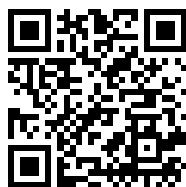


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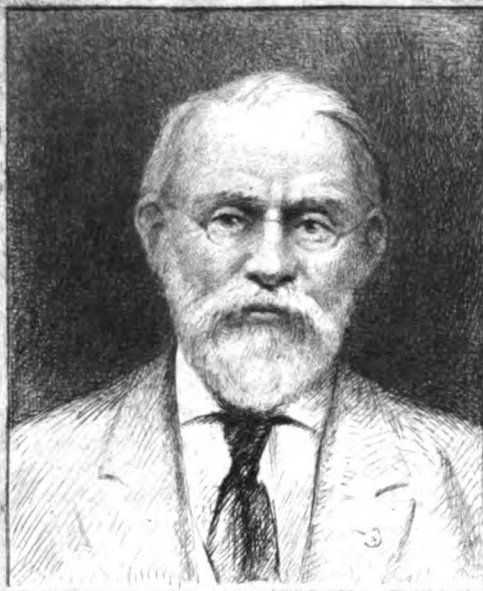
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# **JOURNAL**

**OF THE**

## **United Service Institution of India.**

**Vol. XLVIII, 1919.**

**January—October 1919.**

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**Published under the Authority of the Council**

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**Printed by S. H. LIDDELL.  
LONGACRE, SIMLA.**

**1920**



# Journal of the United Service Institution of India.

Vol. XLVHI—1919.

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# *Journal*

OF THE

## *United Service Institution of India.*

Published under the Authority of the Council.



SIMLA:  
UNITED SERVICE INSTITUTION OF INDIA.

*Agents for Sale in the United Kingdom:*

Messrs. HUGH REES, Ltd., 5, Regent Street, LONDON, S. W.

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## RULES OF MEMBERSHIP.

**A**LL officers of the Royal Navy, Army, Royal Air Force, Colonial Forces, and of the Indian Defence Force, and Gazetted Government Officers shall be entitled to become members without ballot, on payment of the entrance fee and annual subscription.

The Council shall have the power of admitting as honorary members the members of the Diplomatic Corps, foreign naval and military officers, foreigners of distinction, other eminent individuals, and benefactors to the Institution, not otherwise eligible to become members.

Life Members of the Institution shall be admitted on the following terms:—  
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Ordinary members of the Institution shall be admitted on payment of an entrance fee of Rs. 10 on joining, and an annual subscription of Rs. 5, *to be paid in advance*. The period of subscription commences on 1st January.

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If a member fails to pay his subscription for any financial year (ending 31st December) before the 1st June in the following year, a registered notice shall be sent to him by the Secretary inviting his attention to the fact. If the subscription is not paid by 1st January following his name shall be posted in the Reading Room for six months and then struck off the roll of members.

Members joining the Institution on or after the 1st October, will not be charged subscription on the following 1st January, unless the Journals for the current year have been supplied.

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All communications shall be addressed to the Secretary, United Service Institution of India, Simla.

## Contributions to the Journal.

All papers must be written in a clear, legible hand, and only on one side of the paper. All proper names, countries, towns, rivers, etc., must, when in manuscript, be written in capital letters. All plans must have a scale on them.

Contributors are responsible, when they send articles containing any information which they have obtained by virtue of their official positions, that they have complied with the provisions of A. R. I., Vol. II., para. 487, and King's Regulations, para. 453.

Anonymous contributions under a *nom-de-guerre* will not be accepted or acknowledged; all contributions must be sent to the Secretary under the name of the writer, and the paper will, if accepted, be published under that name unless a wish is expressed for it to be published under a *nom-de-guerre*. The Executive Committee will decide whether the wish can be complied with.

The Committee reserve to themselves the right of omitting any matter which they consider objectionable. Articles are only accepted on these conditions.

The Committee do not undertake to authorise the publication of such papers as are accepted, in the order in which they may have been received.

Contributors will be supplied with three copies of their paper *gratis*, if published.

Manuscripts of original papers sent for publication in the Journal will not be returned to the contributor, unless he expresses a wish to have them back and pays the postage.

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2. Officers wishing to become members of the United Service Institution of India should apply to the Secretary. The rules of membership are printed on the opposite page.

3. The reading-room of the Institution is provided with all the leading newspapers, magazines, and journals of military interest that are published. War maps are on view in the Reading Room, with the positions of the troops, so far as is known, marked with flags, in each theatre of war.

4. There is a well-stocked library in the Institution, from which members can obtain books on loan, free. Suggestions for new books are solicited, and will be submitted to the Committee. Books are sent out to members V. P. for the postage, or bearing by railway.

5. The Institution publishes a Quarterly Journal in the months of January, April, July and October which is issued postage free to members in India and to all life members; but ordinary members wishing to have their journals sent to any address out of India must pay in advance Re. 1 per annum to cover foreign postage charges.

6. Members and the public are invited to contribute articles to the Journal of the Institution for which honaria will be awarded by the Executive Committee. Rules for the guidance of contributors will be found on the opposite page.

7. MEMBERS ARE RESPONSIBLE THAT THEY KEEP THE SECRETARY CAREFULLY POSTED WITH REGARD TO CHANGES OF ADDRESS.

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# United Service Institution of India.

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JANUARY 1919.

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## SECRETARY'S NOTES.

### I.—New Members.

The following members joined the Institution between the 21st September and 21st November 1918:—

### LIFE MEMBERS

Captain M. C. Baldwin M. C. Capt Mohamed Akbar Khan of Koti

### ORDINARY MEMBERS.

Captain D. Beanland	Captain A. H. Hill
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Captain J. W. Guise	Captain F. M. Smith M. C.
Captain J. Brilliant	2nd Lieut. J. F. Sheehy
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Captain F. G. Butcher	2nd Lieut. J. P. Buchanan
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Lieut. E. C. O'Brien	Lieut. F. Oliffe
2nd Lieut. S. J. Haynes	Captain C. B. Seagrim
2nd Lieut. G. A. D. Simpson	Captain H. A. Oatts
Captain H. Cave-Brown	Lieut. F. C. Robinson

## **Secretary's Notes.**

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2nd Lieut. E. D. McCarthy	2nd Lieut. R. J. Fox
Brig.-General H. O. Vincent	2nd Lieut. F. C. M. Forward
Lieut. F. A. S. Colvin	2nd Lieut. T. A. McKay
Major W. S. Trail	Major V. Beadon M. C.
Major E. L. D. Clarke	Captain H. Wrigley M. C.
Captain J. D. Penny	2nd Lieut V. Knott
Lt. Col. B. E. Morgan D. S. O.	2nd Lieut H. E. Greatwood
Lieut. J. Martin M. C.	Lieut. J. W. Young
Lieut. K. Guy	Lieut. J. Brown
Lieut. L. S. Rusby	2nd Lieut. R. G. Alban
Lieut. G. Helson	Major W. H. L. J. Welman

### **II.—Tactical Problems.**

In order to assist officers working for tactical examinations, the Institution has schemes with maps and solutions for issue to members only, at Rs. 2-8-0 each. 26 different schemes are now available.

### **III.—Maps.**

The Institution has for sale a variety of large scale maps (1 and 2 inches to one mile), price As. 8 each.

They are specially useful for instruction in map reading, tactical schemes and in preparation for examination, and can be had either of English or Indian country.

### **IV.—Premia for Articles in the Journal.**

Articles accepted for publication in the Journal are paid for, and a sum of approximately Rs. 400 is awarded for articles and reviews published in each Quarterly Journal.

### **V.—Contributions to the Journal.**

With reference to Army Regulations, India, Volume II, paragraph 487, and King's Regulations, paragraph 453, as amended by Army Order 340 of 1913, intending contributors to the Journal of the United Service Institution of India are informed that action to obtain the sanction of His Excellency the Commander-in-Chief to the publication of any article in the Journal of the United Service Institution of India will be taken by the Committee. Contributors are, therefore, responsible that the sanction of their immediate superior has been obtained, and this should be noted on all articles sent for publication. Articles need not be submitted in duplicate.

Contributors must have their articles either typed or printed.

## **VI.—Library Catalogue.**

The library catalogue revised up to 1st January 1916 is now available. Price Rs. 2 or Rs. 2-4-0 per V.P.P. A list of books received each year is published with the January Journal.

## **VII.—Gold Medal Prize Essay 1918-19.**

The Council have chosen as the subject for the Gold Medal Essay for 1918-19 the following:—

The duties and organisation of the Indian Army after the War and its relation to the British Army.

The following are the conditions of the competition:—

(1) The Competition is open to all gazetted officers of the Civil administration, the Navy, Army Air Force and Indian Defence Force who are members of the U.S.I. of India.

(2) Essays must be printed or type-written and submitted in *triplicate*.

(3) When a reference is made to any work, the title of such work is to be quoted.

(4) Essays are to be *strictly anonymous*. Each must have a motto, and enclosed with the essay there should be sent a *sealed* envelope with the motto written on the outside, and the name of the competitor inside.

(5) Essays will not be accepted unless received by the Secretary on or before the 30th June 1919.

(6) Essays will be submitted for adjudication to referees chosen by the Council. No medal will be awarded if the Council consider that the best essay is not of a sufficient standard of excellence.

(7) The name of a successful candidate will be announced at a Council Meeting which will be held in September or October, 1919.

(8) All essays submitted are to become the property of the United Service Institution of India *absolutely*, and authors will not be at liberty to make any use whatsoever of their essays without the sanction of the Council.

(9) Essays should not exceed about 15 pages of the Journal when printed, exclusive of any appendices, tables or maps.

## **VIII.—War Maps.**


War maps are on view in the Reading Room of the Institution with the positions of the troops, so far as is known, marked with flags, in each theatre of War.

**IX.—List of New Books.**



Military Organisation and Equipment	...	...	A	219
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# United Service Institution of India.

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## GOLD MEDAL ESSAY COMPETITION 1918-19.

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- (8) All essays submitted are to become the property of the United Service Institution of India, *absolutely*, and authors will not be at liberty to make any use whatsoever of their essays without the sanction of the Council.
- (9) Essays should not exceed about 15 pages of the size and style of the Journal, exclusive of any appendices, tables or maps.

By order of the Council,

SIMLA  
30th June 1918. }

G. AIRY, LT. COL.  
Secretary, U. S. I. of India

# **The Journal**

OF THE

## **United Service Institution of India.**

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Vol. XLVIII.      JANUARY 1919.      No. 214.

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### **GOLD MEDAL PRIZE ESSAY 1917-18. (AWARDED GOLD MEDAL).**

***The Manœuvres of the future and the general principles on which the higher peace training should be conducted, in view of the lessons of the present war.***

By

CAPTAIN A. V. GOMPERTZ, M. C., R. E.

*Motto "Thorough."*

#### **PART I. INTRODUCTION.**

It is a striking and important quality of war that its arts can never be fully practised save in the actuality of war itself. That is to say that an army can receive no complete test of its efficiency save the supreme one wherein its endeavours either gain or lose everything entrusted to it by its Nation.

This being the case, Peace Training and Manœuvres, which are the sole practice for war, can never be allowed to become ground for speculation. They must be based on solid facts of the past, adapted to the existing circumstances of the present, and modified by sound deduction to meet the obvious possibilities of the future.

Between any two distinct attitudes in Military thought or theory, there will almost invariably be found a great war which has brought the change about. The precepts of Military training and the conduct of Manœuvres are based on facts alone. They are the preparations for war, but they are primarily based on war first of all; so that, in discussing their probable form in the future, it is as well to commence by examining a little their history in the past.



It is roughly only within the last one and a half centuries or so that the accurate study of war as a fine art, and the detailed recording of all its operations with that end in view, have been really widely diffused practices throughout the nations of the world.

Within that period it is possible to trace the influence of each considerable campaign upon at least its immediate successors, in their actual fighting as well as through the medium of the intervening peacetime military training. This is of course especially the case with successive wars of the same nations or their allies.

To quote from comparatively recent events alone, the South African campaign produced certain marked tendencies in our own Military schools of thought. Some of these were the glorification of open warfare, the constitution of small independent groups of all arms, the abolition of massed formation and of shock tactics of infantry, a temporary disregard of Fortress warfare and of the many lessons of the Crimea; and an exaggerated idea of the stopping power of long range rifle fire.

The Russo-Japanese war, coming shortly after this, and approaching far more in its operations and its characteristics to the fighting of today, gave one furiously to think; and in some respects completely contradicted the lessons of South Africa.

It is probably fair to say that the Germans appreciated far more justly than we did the relative value of the lessons gained in the respective wars of 1899-1902 and 1904-5.

As disengaged spectators of both campaigns they could weigh them in a much more impartial balance than we were capable of doing: the very large proportion of our Regular Army, who had been actively engaged in the former campaign, could not well be expected to be quite free from bias.

To us South Africa was, at any rate at the time, a great war, our greatest war for half a century. To Germany it was but a "Glorified Frontier Show" (an aspect which it possesses in the eyes of not a few of its combatants now since, say, 1915); and she undoubtedly assessed its value accordingly, whilst appreciating fully the intrinsic value of its own lessons.

That she was not unduly biassed either by South Africa or Manchuria is clearly shewn by her farseeing readiness for the changing vicissitudes of this war. We used to laugh at her marching of opposing massed formations to within 200 yards of each other during pre-war manoeuvres: I myself have heard it ridiculed as unreal by experienced soldiers. Yet within a few years these same soldiers were facing the same thing done not in the face of opposing brass bands as hitherto, but in the face of all the artillery and rifle fire that we could muster. Consequently our adversary was as equally well prepared for the trench-fighting between flankless hosts in 1915 as she was for the first great sweeping rush of open fighting through Belgium and France in the autumn of 1914.

She had learnt the lessons of both 1899-1902 and 1904-5, and had allowed neither to preclude the other.

To what extent the influences of the Manchurian campaign preponderated in Russian Military Training during the years that followed until the present war cannot be traced without detailed reference to the textbooks of her army. It is, however, extremely probable that a close investigation would prove them to be paramount.

The moral of all this is not difficult to see. Manoeuvres and Peace training being two phases of the practice for war, and the characteristics of no two wars throughout the history of the world being identical, it must be regarded as a Ruling Principle both of Manoeuvres and of Higher peace training that, whilst the newest lessons are diligently inculcated and practised, the older but still pertinent ones must in no wise be lost sight of or neglected.

Neither is this idle preaching. After this war there is bound to be a tendency to neglect the older lessons, for many reasons.

The present conflict is our latest war, our largest war in all our history of many, and is regarded by many as being the very apotheosis of war. Moreover many men have now risen to comparatively high command who not only have known no other

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field service before now, but who knew nothing of war in general nor of any war in particular four years ago, and who have had no grounding in anything but the requirements of this present one.

Our next war may be as radically different from this one as South Africa was from the Crimea: its characteristics may be as completely indefinable beforehand as were those of the Balkan war of 1912.

Hence it is evident that, although the military schools of thought of post-war days may base their teachings on a forecast of the then-most-probable war, just as Germany did before this one which she planned, yet those who lay down the lines of Peace training both higher and lower must base their conclusions on as clear and unbiassed a review as possible, not only of this present war, but of all those preceding ones too which may have any bearing on future fighting.

This then I would take unhesitatingly as the first and the greatest lesson of this war; namely Not to Forget the Lesson of Other wars.

In planning to discuss the Manoeuvres and the Higher Peace Training of the future, both of which are necessarily bound up in each other to some extent, it is perhaps as well first to declare tentatively what the lessons of this war are, since they must bear heavily and similarly upon both the subjects under debate.

It is too early by far to enunciate with any degree of finality what we have learnt since 1914; the war is not yet finished; new developments arise almost with each season, and none of the war is yet so old as to bear the clear, distanced, introspection of history.

Still, putting aside all questions of lessons learnt in statesmanship, policy, and international considerations, four more lessons appear to have already materialised in a sufficiently concrete form to be worthy of present consideration from a purely military standpoint.

Taking these in order of importance, the five lessons thus enunciated are:—

- (1) The value of the lessons of previous wars.

- (2) The value of efficient High Command.
- (3) The value of good Staff Work.
- (4) The value of complete Co-operation.
- (5) The value of good Transportation.

There is also a sixth lesson, as will be seen later on, exceeding in importance any of the above five: it will have to be touched upon for its indirect effects; but it is omitted from the Military lessons under analysis as being more of a National one.

A word of explanation is due as to why the above five lessons have been selected.

The subject under consideration being the future Manoeuvres and Higher Peace training, only the influences bearing directly upon these points will be examined.

Other lessons we have learnt in plenty: some old ones have been repeated, some new ones introduced. Discipline for instance has never had such a vindication in any war as in this present one; the comparative lack of deep-seated and instinctive discipline amongst our own newly-raised officers and men has been a continual asset to our enemies by contrast with their own troops.

The policy of complete trust of subordinate commanders, which means giving them ungrudgingly the fair means withal to perform possibilities, without demanding impossibilities, has also been vindicated again and again, alike by allies and enemies. The lesson of the "Green Curve", was shewn in a striking manner at Kut, vide Part VII para. 7 of the Official Mesopotamia Commission Report.

These and suchlike however, although worthy of mention here, bear chiefly upon other phases of training and are too particular to come within the short broad scope of the present article.

It is proposed only to consider the effects of the five lessons given above, upon the Manoeuvres and the Higher Peace training of the future, and those of the sixth lesson only where they come in direct relation.

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The simplest form under which this may be done appears to be:—

- A. (Part II) To examine each of those five lessons in some little detail, *seriatim*.
- B. (Part III) To discuss the *Manoeuvres* of the future in the light of what has been said before.
- C. (Part IV) To discuss similarly the Higher Peace Training of the future.
- D. (Part V) Conclusion.

### **Part II.**

#### **THE FIVE LESSONS.**

1. The first lesson, The value of the lesson of previous wars.

The clarity and importance of this first lesson have, it is hoped, been sufficiently demonstrated in the Introduction (part I) to this article.

The main point is that there will most incontestably exist a great tendency after this war for its own lessons to obscure those of other wars by their recentness and by their grandeur of scale; and also because so many men even in comparatively high command, some certainly of general rank, have learnt well the lessons of this war, but have perhaps hardly learnt at all the lessons of any other war whatsoever.

Remains only to give one or two illustrations of previous lessons already forgotten or part-forgotten, and that to our cost, before this war has been finished even.

Firstly, consider open fighting, and all that initiative and "all-round-wideawakeness" that open fighting calls for in every man from the highest to the lowest.

That art we have learnt in almost every campaign we have undertaken: perhaps its actual practice reached the climax as far as we were concerned in the campaign in South Africa.

During the action at Mons and the retreat that followed it, it was the open-fighting training of our Regular army that saved it from annihilation: officers and men of every rank and appointment shewed an alert resourcefulness and a milit-

savoir-faire (as well as a refusal to be beaten) that astounded our well trained adversaries. It did far more than that: it preserved an overwhelmed force as a perfectly-controlled and redoubtable unity against all the ordinary "rules of the game"; and it made the battle of the Marne possible. Yet, despite the continual efforts and directions of those in authority, one continues to meet upon occasion the spirit of "This war will be finished in the trenches: why learn anything else?"

As a second illustration one may quote musketry. That too was a lesson learnt in all our campaigns, notably in South Africa and on the Indian Frontier.

Again at Mons and throughout 1914 generally, the musketry of our Old Army did wonders for us; the German admiration for our straight shooting is a matter of history. But above all that, what straight shooting accomplished for us was the most necessary thing of all, namely that our pitifully small numbers on the defensive could meet on an equality what was at times a simply overwhelming disparity of attacking enemy.

Yet what had musketry got to even by 1916?

Trench life, and particularly that on a "There is nothing to report" front, bred snipers: fearless genial souls with telescopic sights and the attributes of the true hunter. They played havoc with the careless enemy and with the badly blinded bit of line and caused a host of "permanent" casualties to the enemy.

Meanwhile the ordinary "man in the trench", that "man in the street" of western front life, picked his fancy upon occasion if ever a target offered, fired off a more or less stated number of rounds on sentry-go by night, and joined in the periodical "mad minutes" that used to liven life during the sleeping hours. Beyond that he did little or nothing of musketry: he cleaned his rifle because he was told to; and he completely and utterly lost sight of one of a soldier's first laws, that "Your rifle is your first friend, your last friend, and the best friend you'll ever have in this life".

He expected the artillery to do tremendous deeds for him—they did—he grew to count most inordinately upon trenchmor-

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In the olden days, even our Commander in Chief did not command in war or peace as much as a third of the forces that some men have commanded, concentrated in the field in this war: our Commander-in-Chief in India in 1914 administered, even on a peace footing, less men than many an Army Commander in the field directs in war now.

In the short course of four years we have had the second lesson well demonstrated by the brilliant success in one theatre of war by a man of the right type; whilst almost simultaneously in another theatre the lesson was being learnt by default only.

To call the lesson a new one in itself would be fatuous: the necessity for efficient high command is one of the oldest of war. Where however it presents a novelty to us, is that in this war for the first time in our history, we have been called upon to provide efficient commanders for really large forces. Where moreover the importance of the lesson to us lies, is in that we must be systematically prepared to do so at any time in the future.

It would be futile to pretend that, prior to 1914, we had men already trained for genuinely large commands in the field. In the whole of our army we had not got half a dozen men of active military age, who had ever commanded in the field a force even the size of a large modern Army Corps.

The systematic "Commandement des Grands Unités" was unknown to us save on paper; we had to learn it from our Allies in France and Russia, and from our enemies as best we could.

That we have produced men capable of such command without special training is no evidence that we shall always do so: it is an old but nevertheless true tag that we are a proverbially lucky nation; but our run of luck must never be allowed to bias what is rather National than Military Policy: we must never bet nationally on our national luck.

Our armies at present in the field are the largest that we have ever created: the next war may even see them larger still, or at least not appreciably less; and the fighting command of



tars and upon bombs of all kinds, upon his butt and bayonet too, and all that was necessary. But he allowed himself to forget about shooting; and the fault lay with higher men than him.

By 1916, in a great part of our forces, really effective musketry was a lost art; and we paid for it every day when the line broke. Multitudinous Machine, and Lewis guns completed the downfall. What that state got to by 1917 I do not know accurately. In a first draft for this article I had written as follows:—

“One may go further too; and, at the risk of being classed with Cassandra, one may confidently assert that if our musketry of to-day were our musketry of 1914, the German open advances of to-day would never have gone the distances that they have done beyond the broken trench lines.”

I would now, upon looking back with a clearer retrospect at 1916, go further still, and ask, “If our musketry of 1916 had been that of 1914, would we have ended up where we did on the Somme or much further on?”

The musketry was never, or very seldom, of a class fully to sustain the necessary intervals between close artillery support; and that was where we lost ground—or rather did not get ground we should have.

These two examples, Open fighting and Musketry, may suffice for illustration of the principle. Both in the Future Higher Peace Training and the Future Manœuvres, and in the future training indeed of all ranks, we must first remind ourselves firmly of, and then assess impartially the value of, the lessons of Previous and Present wars alike.

2. The Second Lesson, The value of Efficient High Command.

To enunciate this as a lesson of the present war to the larger Continental nations would probably produce a reply of the “Stale News” variety. To us however, the lesson is of necessity a new and not an old one; as it cannot be said that, prior to this war, we had any soldier in really exalted command. For this reason the lesson applies peculiarly to us.

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Our armies at present in the field are the largest that we have ever created: the next war may even see them larger still, or at least not appreciably less; and the fighting command of

such huge forces is a very different matter from that of the small units which constituted the previous limits of our practical training.

It is thus easy to see why it was necessary to re-quote here as a lesson of this war what is in itself a lesson of every war: because it *was* in some aspects completely new to us; and because it bears so heavily upon both our higher training and our manoeuvres in the future. More need not be said in explanation of the lesson itself.

### 3. The Third Lesson, the value of Good Staff Work.

Here again I am only quoting a lesson which in itself is very old: which has again been forcibly demonstrated to us in this war by force of circumstances: and which must of necessity bear heavily upon the higher training and the manoeuvres of the future.

Little needs to be said as amplification of this lesson. The wonderful staff work during the retreat from Mons affords us an illustration; certain phases of staff work as revealed by the Official Report of the Mesopotamia Commission give us the lesson by default.

One phrase from the latter communication however calls for notice; and that is where we read of complaints of "Scratch Staffs." Scratch staffs are a contingency which we must seriously endeavour to avoid in all future campaigns: even though many of them have done good work in this war.

Before the war we had our Staff Colleges: one of the results of their labour was the staff work during the Retreat; but it cannot be claimed with any justice that they produced anything like an adequate reserve of Staff officers, even for an appreciable portion of our armies.

That can be clearly shewn by facts. Prior to 1914 it was quite the exception for a p. s. c. officer not to have secured a staff appointment within say 18 months of his leaving a staff college (Camberley or Quetta): and the number of p. s. c. men at any time still serving regimentally, or not in any staff employ, was singularly small, when taken as a percentage of the officers who were qualified at least to enter for the Staff College examinations.

What did this mean? It could only mean one thing; namely that the numbers of vacancies in the Staff Colleges corresponded far too closely with the actual requirements of the Staff itself, so that no considerable reserve of p. s. c. men could ever be kept.

There can never be the slightest question as to the relative efficiencies in Staff Duties of p. s. c. men and of non-p. s. c. men, *ceteris paribus*; and it is largely due to the obvious necessity for the creation of a Staff reserve of adequate proportions that this third lesson has been quoted as bearing upon future higher training. More will be said of this in considering that training.

4. The fourth lesson, the Value of Complete Co-operation.

In this question again I shall probably be accused of simply reciting the oldest principles of war, under pretence of giving this war's lessons.

In all truth this war has not given us over many brand-new lessons, excepting new lessons in tactics which must of course vary with the introduction of each new tactical weapon. In attempting to forecast the future training therefore, one is necessarily forced in the main to contemplate those old lessons which this war is inculcating with perhaps renewed vigour; and it is this which has led me to the selection of this fourth lesson.

Since 1914 we have had three great new members introduced into the military machine: namely, motor transport en masse, machine guns also en masse, and aircraft. These three, especially the latter, have all called for considerable thought as to the best manner of co-ordinating them with the rest of the machinery in general.

Moreover Artillery has increased out of all proportion to previous days: in mass, in calibre, in accuracy of fire, and in the mobility of heavy pieces; and all this again has produced a very deep and successful study of the co-operation of one arm with all the others.

It is probably correct to say that these four new factors in the military machine have, by their scientific introduction, given a general fillip to the evolution of co-operation as a whole; as well as to that between themselves and the rest of the machine. They have set the co-ordinating staffs thinking hard.

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This is bound to tell in the future. The effects for instance of completely co-operating artillery and infantry, and those of the two arms working with any appreciable degree of independence, are so vastly in contrast; and the efficiency of each separate arm is so highly increased by the dovetailing of its work with that of the other, that, in an age demanding the maximum of efficiency from each and all, co-operation must come in for very special study.

Both in the future manoeuvres and in the future higher peace training this special study of co-operation must play a large part; for the first essential of successful co-operation is an intelligent understanding of the other man's job; and this must undoubtedly be aimed at within reasonable limits in all phases of military instruction.

I believe I am right in saying that it was in about 1909 in England that the practice first became at all general of attaching officers to other branches of the service for this specific purpose. The idea is beyond praise: and I venture to predict that it will be carried out systematically at other times besides manoeuvres after the war, when we have time to settle down to properly complete military training: its good effects have already been marked in this war.

To quote from a modern and eminent German Military critic: von Freytag-Loringhoven says, "Since the reforms of Scharnhorst, it has been a principle with us that the officer is raised above the men in the ranks both by education and training. Since the standard of education of the Mass of the people has been considerably raised during the last hundred years, it is only logical that higher demands should be made from the officers in this respect, than was the case at the time of the War of Liberation".

This is indisputable. Its application to ourselves after the war however may be taken rather as keeping pace with the increase both of general education and of military knowledge as well, in the ranks of post-war soldiers. Then, and equally now, it is not enough for an officer to know his own job.

He must be a specialist at that, this is an age of specialists; but he must equally have at least a sufficient grounding in the work of the other arms in proportion to the degrees of co-operation, which he is likely to have to carry out with each of them.

It is those degrees of co-operation which are now so largely on the increase, as to call for a deeper study of other work than their own from all officers. There has been little or no time for an adequately thorough training of our officers in these matters during this war: after the war there will be: we must see to it; and the training must be carried out in proportionately lesser degrees by non-commissioned officers and men as well.

5. The fifth lesson, the Value of Good Transportation.

This is perhaps one of the lessons of the war which does present the feature of novelty in a great degree.

All the fairly recent wars of any magnitude have been mainly fought out on foot and on horseback: the operations in Manchuria in 1904-5 certainly depended to an important extent on one single artery of railway; but the present war is the first one which has been fought out wholesale on means of quick transportation.

Germany's own strategic railways and her very skilful and premeditated strategic use of other peoples' railways were the keys to the success of her invasions of France and of Belgium in 1914 and of Poland and Russia in 1915; and, apart from railways, the extensive use of motor transport and of light railways has given to the forces of most of the present belligerents a mobility which no previous army ever possessed.

It is the huge increase in numbers of the present armies which in the main has necessitated such extra endeavours in the matter of Transportation: not only are Strategic and Grand-Tactical mobility of paramount importance nowadays; but there are the questions of supplies, munitions, evacuation, and replacement, to be considered on an equally vast scale.

Transportation moreover does not consist of the use of railways and of light railways alone: roads have to be considered for movements forward of railhead and for local distribution; and, apart from the question of sea transport, which is purely naval,

there is the important one of the full development of inland waterways with their vital asset of transporting all goods where slow progress suffices, to the consequent great lightening of over-worked railways and congested roads for strategical (grand-tactical) movement, where speed is an essential.

Transportation is also a matter of extreme importance in every class of warfare of big numbers. In open warfare quick movement and correspondingly quick supplying and munitioning are most necessary: in trench warfare the quick mobility of striking forces, reserves, and that of all the preparative and resistive impedimenta from point to point behind the lines, is the only asset which can secure final success either in offensive or in defensive work. Besides: successful transportation in the ultra-crowded, congested, area in the vicinity of active operations in trench warfare is a thing in itself.

The successful co-ordination of, and economic individual use of, all the various different kinds of transportation available nowadays is a matter calling for the deepest thought and the most systematic handling possible. Nothing must be left to chance or to the idiosyncracies of an individual branch or unit: the creation of our own Directorate of Transportation in France in January 1917 was the materialising of a principle, which has come to stay in permanency throughout all future campaigns of any appreciable magnitude.

In small wars probably the question will be adequately dealt with by a "Transportation Committee" of the heads of departments; but in big campaigns the Directorate must again be established, solid, and free-powered.

This lesson will affect both the Manoeuvres and the Higher Peace Training of the future: the former in practice, and the latter as to theory.

### **PART III. THE MANOEUVRES OF THE FUTURE.**

In selecting five lessons of this war in my introduction, perhaps one was left out which will, or rather ought to, bear heavily upon future military training.

That lesson, which is being burnt deeper and deeper into the minds of all rationally thinking men every day, is that after this war we must have a real, and not a miniature, army.

Sixth in my order of quoting, this lesson is the first, far and away, in matter of national importance. Each day since 1914, each day as long as the war lasts, we are still paying in blood and in money the same old original bill which the Central Powers presented to us on the fourth of August 1914, the bill for Unpreparedness.

Our unpreparedness was far from being merely one of numbers, it included the power to increase our numbers efficiently to an adequate total. And that is a matter of continuity of training, of tradition, of deep instinct, of expanding on firm and equal lines, so that those things should not be lost.

Before this war, to hope for an army bearing any appreciable relation to the size and responsibilities of our Empire was hopeless. The greatest obstacle to that was not expense, not disinclination, not the lethargy of luxurious national wealth, not obstructionist or vote-catching members, not secret Teuton influence. The greatest obstacle to a large British Army in July 1914 was Oliver Cromwell.

It was above all the deep-seated mistrust of a standing army, as strong as ever, after what is the short lapse of two and a half centuries to the most conservative nation in the world, that declared rigidly for small land forces.

Since then however, times have changed radically. In four short years, thanks to the Cause above all, the Nation and the Army, or rather the Empire and the Army helped largely by conscription at home, have become bound and united together in a way that could never before have been either possible or foreseeable.

It is hoped therefore that this short digression into History may be pardonable, as furnishing the grounds for hope that after the lesson of this war we shall have an army of at least an appreciable size; and it follows that the peacetime manoeuvres must be on a correspondingly increased scale.



In examining future manoeuvres, distinction may be made between principle and detail.

Considering Principles first, there seems no need for change in any save one. In that one, namely the Main Object of Manœuvres, a radical change must be made; or, if haply it does not constitute a radical change, then at least a radical pronouncement, admitting of no misunderstanding, must be made on the subject. Herein the second and third lessons of the war are concerned.

In pre-war days one often heard the complaint in smaller units:—"We are not learning anything from these manoeuvres: we're only having a great deal of extra trouble for the benefit of the Staff, we're only the Stage Properties of a Staff Ride". The Commanders were included under the generic name of Staff.

That, which is incidentally in entire accord with Count von Bernhardi in his "Germany and the Next War", is precisely as it should be.

The reply ought to be "You are quite correct, you *are* only out for the benefit of the Staff; and you are not learning anything from these manoeuvres save the minor details of co-operation with other arms because, being good soldiers, you had nothing else to learn from them when you came to them. Your Staff cannot be trained on paper any more than you can; and all the trouble you are being put to now for their experience will be repaid a thousandfold both to you, to your Staff, and to your Empire, the next time that you and your Staff go on service together".

Von Bernhardi is also incontestably right where, in the same book, he says that large-scale manoeuvres ought to have nothing more to teach to the soldier of a unit.

Good staff work is a vital essential to the success of a campaign: it can only be attained to by thorough peacetime practice; and thorough peacetime practice cannot be obtained with insufficiently trained troops. You cannot learn to ride on a horse that is learning to walk.

In future the principle will have to be enunciated and fully maintained, that Manœuvres *are* only for the benefit of the Staff;

and the Staff must be most carefully trained to be ready to take the fullest advantage of them.

From principles, I pass to details. The changes in details of **Manoeuvres** may best be summed up by the enunciation of certain postulates, not necessarily for reform, but rather for Adaptation.

The first of these postulates may be taken separately, as it is the direct consequence of the change of principle already advocated, and is rather a preparation for manoeuvres than an integral part of them.

The first postulate is, that far more complete training must be carried out within the unit, before that unit goes on manoeuvres.

The officers and men of units should have nothing to learn from manoeuvres save such final details of co-operation as are practicable, and they should also watch the Staff work as far as possible. This will involve much more active work, route-marching, billeting, and bivouacking away from barracks, than has hitherto been the custom; and as a consequence it may either cut down considerably the time actually available for manoeuvres, or, preferably, involve more concentrated training within the unit. That can only be made clear by later consideration when the time arrives; but civilian and soldier alike will have to work a good deal harder in post-war than in pre-war days.

The other postulates I would make are:—

- (i) Adaptation to new tactical weapons.
- (ii) Extension of the Manoeuvre Area and Forces.
- (iii) Increase of Reality and Movement.

These may be examined seriatim.

- (ii) Adaptation to new tactical weapons.

This is an obvious postulate. Manoeuvres must include a wealth of tactics, and tactics must vary with tactical weapons. What is indicated here is rather the employment of, and the co-operation of other arms with the latest tactical troops.

Not only should Tanks, Aeroplanes, Motor Machine Gun batteries etc etc be given sufficient play in future manoeuvres, but also any later weapons or formations too, such as our own

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### **Part II.**

#### **THE FIVE LESSONS.**

1. The first lesson, The value of the lesson of previous wars.

The clarity and importance of this first lesson have, it is hoped, been sufficiently demonstrated in the Introduction (part I) to this article.

The main point is that there will most incontestably exist a great tendency after this war for its own lessons to obscure those of other wars by their recentness and by their grandeur of scale; and also because so many men even in comparatively high command, some certainly of general rank, have learnt well the lessons of this war, but have perhaps hardly learnt at all the lessons of any other war whatsoever.

Remains only to give one or two illustrations of previous lessons already forgotten or part-forgotten, and that to our cost, before this war has been finished even.

Firstly, consider open fighting, and all that initiative and "all-round-wideawakeness" that open fighting calls for in every man from the highest to the lowest.

That art we have learnt in almost every campaign we have undertaken: perhaps its actual practice reached the climax as far as we were concerned in the campaign in South Africa.

During the action at Mons and the retreat that followed it, it was the open-fighting training of our Regular army that saved it from annihilation: officers and men of every rank and appointment shewed an alert resourcefulness and a military

savoir-faire (as well as a refusal to be beaten) that astounded our well trained adversaries. It did far more than that: it preserved an overwhelmed force as a perfectly-controlled and redoubtable unity against all the ordinary "rules of the game"; and it made the battle of the Marne possible. Yet, despite the continual efforts and directions of those in authority, one continues to meet upon occasion the spirit of "This war will be finished in the trenches: why learn anything else?"

As a second illustration one may quote musketry. That too was a lesson learnt in all our campaigns, notably in South Africa and on the Indian Frontier.

Again at Mons and throughout 1914 generally, the musketry of our Old Army did wonders for us; the German admiration for our straight shooting is a matter of history. But above all that, what straight shooting accomplished for us was the most necessary thing of all, namely that our pitifully small numbers on the defensive could meet on an equality what was at times a simply overwhelming disparity of attacking enemy.

Yet what had musketry got to even by 1916?

Trench life, and particularly that on a "There is nothing to report" front, bred snipers: fearless genial souls with telescopic sights and the attributes of the true hunter. They played havoc with the careless enemy and with the badly blinded bit of line and caused a host of "permanent" casualties to the enemy.

Meanwhile the ordinary "man in the trench", that "man in the street" of western front life, picked his fancy upon occasion if ever a target offered, fired off a more or less stated number of rounds on sentry-go by night, and joined in the periodical "mad minutes" that used to liven life during the sleeping hours. Beyond that he did little or nothing of musketry: he cleaned his rifle because he was told to; and he completely and utterly lost sight of one of a soldier's first laws, that "Your rifle is your first friend, your last friend, and the best friend you'll ever have in this life".

He expected the artillery to do tremendous deeds for him—they did—, he grew to count most inordinately upon trenchmor-

tars and upon bombs of all kinds, upon his butt and bayonet too, and all that was necessary. But he allowed himself to forget about shooting; and the fault lay with higher men than him.

By 1916, in a great part of our forces, really effective musketry was a lost art; and we paid for it every day when the line broke. Multitudinous Machine, and Lewis guns completed the downfall. What that state got to by 1917 I do not know accurately. In a first draft for this article I had written as follows:—

“One may go further too; and, at the risk of being classed with Cassandra, one may confidently assert that if our musketry of to-day were our musketry of 1914, the German open advances of to-day would never have gone the distances that they have done beyond the broken trench lines.”

I would now, upon looking back with a clearer retrospect at 1916, go further still, and ask, “If our musketry of 1916 had been that of 1914, would we have ended up where we did on the Somme or much further on?”

The musketry was never, or very seldom, of a class fully to sustain the necessary intervals between close artillery support; and that was where we lost ground—or rather did not get ground we should have.

These two examples, Open fighting and Musketry, may suffice for illustration of the principle. Both in the Future Higher Peace Training and the Future Manœuvres, and in the future training indeed of all ranks, we must first remind ourselves firmly of, and then assess impartially the value of, the lessons of Previous and Present wars alike.

2. The Second Lesson, The value of Efficient High Command.

To enunciate this as a lesson of the present war to the larger Continental nations would probably produce a reply of the “Stale News” variety. To us however, the lesson is of necessity a new and not an old one; as it cannot be said that, prior to this war, we had any soldier in really exalted command. For this reason the lesson applies peculiarly to us.

In the olden days, even our Commander in Chief did not command in war or peace as much as a third of the forces that some men have commanded, concentrated in the field in this war: our Commander-in-Chief in India in 1914 administered, even on a peace footing, less men than many an Army Commander in the field directs in war now.

In the short course of four years we have had the second lesson well demonstrated by the brilliant success in one theatre of war by a man of the right type; whilst almost simultaneously in another theatre the lesson was being learnt by default only.

To call the lesson a new one in itself would be fatuous: the necessity for efficient high command is one of the oldest of war. Where however it presents a novelty to us, is that in this war for the first time in our history, we have been called upon to provide efficient commanders for really large forces. Where moreover the importance of the lesson to us lies, is in that we must be systematically prepared to do so at any time in the future.

It would be futile to pretend that, prior to 1914, we had men already trained for genuinely large commands in the field. In the whole of our army we had not got half a dozen men of active military age, who had ever commanded in the field a force even the size of a large modern Army Corps.

The systematic "Commandement des Grands Unités" was unknown to us save on paper; we had to learn it from our Allies in France and Russia, and from our enemies as best we could.

That we have produced men capable of such command without special training is no evidence that we shall always do so: it is an old but nevertheless true tag that we are a proverbially lucky nation; but our run of luck must never be allowed to bias what is rather National than Military Policy: we must never bet nationally on our national luck.

Our armies at present in the field are the largest that we have ever created: the next war may even see them larger still, or at least not appreciably less; and the fighting command of

such huge forces is a very different matter from that of the small units which constituted the previous limits of our practical training.

It is thus easy to see why it was necessary to re-quote here as a lesson of this war what is in itself a lesson of every war: because it *was* in some aspects completely new to us; and because it bears so heavily upon both our higher training and our manoeuvres in the future. More need not be said in explanation of the lesson itself.

### 3. The Third Lesson, the value of Good Staff Work.

Here again I am only quoting a lesson which in itself is very old: which has again been forcibly demonstrated to us in this war by force of circumstances: and which must of necessity bear heavily upon the higher training and the manoeuvres of the future.

Little needs to be said as amplification of this lesson. The wonderful staff work during the retreat from Mons affords us an illustration; certain phases of staff work as revealed by the Official Report of the Mesopotamia Commission give us the lesson by default.

One phrase from the latter communication however calls for notice; and that is where we read of complaints of "Scratch Staffs." Scratch staffs are a contingency which we must seriously endeavour to avoid in all future campaigns: even though many of them have done good work in this war.

Before the war we had our Staff Colleges: one of the results of their labour was the staff work during the Retreat; but it cannot be claimed with any justice that they produced anything like an adequate reserve of Staff officers, even for an appreciable portion of our armies.

That can be clearly shown by facts. Prior to 1914 it was quite the exception for a p. s. c. officer not to have secured a staff appointment within say 18 months of his leaving a staff college (Cambridge or Quetta): and the number of p. s. c. men at any time still serving regimentally, or not in any staff employ, was singularly small, when taken as a percentage of the officers who were qualified at least to enter for the Staff College examinations.

What did this mean? It could only mean one thing; namely that the numbers of vacancies in the Staff Colleges corresponded far too closely with the actual requirements of the Staff itself, so that no considerable reserve of p. s. c. men could ever be kept.

There can never be the slightest question as to the relative efficiencies in Staff Duties of p. s. c. men and of non-p. s. c. men, *ceteris paribus*; and it is largely due to the obvious necessity for the creation of a Staff reserve of adequate proportions that this third lesson has been quoted as bearing upon future higher training. More will be said of this in considering that training.

4. The fourth lesson, the Value of Complete Co-operation.

In this question again I shall probably be accused of simply reciting the oldest principles of war, under pretence of giving this war's lessons.

In all truth this war has not given us over many brand-new lessons, excepting new lessons in tactics which must of course vary with the introduction of each new tactical weapon. In attempting to forecast the future training therefore, one is necessarily forced in the main to contemplate those old lessons which this war is inculcating with perhaps renewed vigour; and it is this which has led me to the selection of this fourth lesson.

Since 1914 we have had three great new members introduced into the military machine: namely, motor transport en masse, machine guns also en masse, and aircraft. These three, especially the latter, have all called for considerable thought as to the best manner of co-ordinating them with the rest of the machinery in general.

Moreover Artillery has increased out of all proportion to previous days: in mass, in calibre, in accuracy of fire, and in the mobility of heavy pieces; and all this again has produced a very deep and successful study of the co-operation of one arm with all the others.

It is probably correct to say that these four new factors in the military machine have, by their scientific introduction, given a general fillip to the evolution of co-operation as a whole; as well as to that between themselves and the rest of the machine. They have set the co-ordinating staffs thinking hard.



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This is bound to tell in the future. The effects for instance of completely co-operating artillery and infantry, and those of the two arms working with any appreciable degree of independence, are so vastly in contrast; and the efficiency of each separate arm is so highly increased by the dovetailing of its work with that of the other, that, in an age demanding the maximum of efficiency from each and all, co-operation must come in for very special study.

Both in the future manoeuvres and in the future higher peace training this special study of co-operation must play a large part; for the first essential of successful co-operation is an intelligent understanding of the other man's job; and this must undoubtedly be aimed at within reasonable limits in all phases of military instruction.

I believe I am right in saying that it was in about 1909 in England that the practice first became at all general of attaching officers to other branches of the service for this specific purpose. The idea is beyond praise: and I venture to predict that it will be carried out systematically at other times besides manoeuvres after the war, when we have time to settle down to properly complete military training: its good effects have already been marked in this war.

To quote from a modern and eminent German Military critic: von Freytag-Loringhoven says, "Since the reforms of Scharnhorst, it has been a principle with us that the officer is raised above the men in the ranks both by education and training. Since the standard of education of the Mass of the people has been considerably raised during the last hundred years, it is only logical that higher demands should be made from the officers in this respect, than was the case at the time of the War of Liberation".

This is indisputable. Its application to ourselves after the war however may be taken rather as keeping pace with the increase both of general education and of military knowledge as well, in the ranks of post-war soldiers. Then, and equally now, it is not enough for an officer to know his own job.

He must be a specialist at that, this is an age of specialists; but he must equally have at least a sufficient grounding in the work of the other arms in proportion to the degrees of co-operation, which he is likely to have to carry out with each of them.

It is those degrees of co-operation which are now so largely on the increase, as to call for a deeper study of other work than their own from all officers. There has been little or no time for an adequately thorough training of our officers in these matters during this war: after the war there will be: we must see to it; and the training must be carried out in proportionately lesser degrees by non-commissioned officers and men as well.

5. The fifth lesson, the Value of Good Transportation.

This is perhaps one of the lessons of the war which does present the feature of novelty in a great degree.

All the fairly recent wars of any magnitude have been mainly fought out on foot and on horseback: the operations in Manchuria in 1904-5 certainly depended to an important extent on one single artery of railway; but the present war is the first one which has been fought out wholesale on means of quick transportation.

Germany's own strategic railways and her very skilful and premeditated strategic use of other peoples' railways were the keys to the success of her invasions of France and of Belgium in 1914 and of Poland and Russia in 1915; and, apart from railways, the extensive use of motor transport and of light railways has given to the forces of most of the present belligerents a mobility which no previous army ever possessed.

It is the huge increase in numbers of the present armies which in the main has necessitated such extra endeavours in the matter of Transportation: not only are Strategic and Grand-Tactical mobility of paramount importance nowadays; but there are the questions of supplies, munitions, evacuation, and replacement, to be considered on an equally vast scale.

Transportation moreover does not consist of the use of railways and of light railways alone: roads have to be considered for movements forward of railhead and for local distribution; and, apart from the question of sea transport, which is purely naval,

there is the important one of the full development of inland waterways with their vital asset of transporting all goods where slow progress suffices, to the consequent great lightening of over-worked railways and congested roads for strategical (grand-tactical) movement, where speed is an essential.

Transportation is also a matter of extreme importance in every class of warfare of big numbers. In open warfare quick movement and correspondingly quick supplying and munitioning are most necessary: in trench warfare the quick mobility of striking forces, reserves, and that of all the preparative and resistive impedimenta from point to point behind the lines, is the only asset which can secure final success either in offensive or in defensive work. Besides: successful transportation in the ultra-crowded, congested, area in the vicinity of active operations in trench warfare is a thing in itself.

The successful co-ordination of, and economic individual use of, all the various different kinds of transportation available nowadays is a matter calling for the deepest thought and the most systematic handling possible. Nothing must be left to chance or to the idiosyncracies of an individual branch or unit: the creation of our own Directorate of Transportation in France in January 1917 was the materialising of a principle, which has come to stay in permanency throughout all future campaigns of any appreciable magnitude.

In small wars probably the question will be adequately dealt with by a "Transportation Committee" of the heads of departments; but in big campaigns the Directorate must again be established, solid, and free-powered.

This lesson will affect both the Manoeuvres and the Higher Peace Training of the future: the former in practice, and the latter as to theory.

### **PART III THE MANOEUVRES OF THE FUTURE.**

In selecting five lessons of this war in my introduction, perhaps one was left out which will, or rather ought to, bear heavily upon future military training.

That lesson, which is being burnt deeper and deeper into the minds of all rationally thinking men every day, is that after this war we must have a real, and not a miniature, army.

Sixth in my order of quoting, this lesson is the first, far and away, in matter of national importance. Each day since 1914, each day as long as the war lasts, we are still paying in blood and in money the same old original bill which the Central Powers presented to us on the fourth of August 1914, the bill for Unpreparedness.

Our unpreparedness was far from being merely one of numbers, it included the power to increase our numbers efficiently to an adequate total. And that is a matter of continuity of training, of tradition, of deep instinct, of expanding on firm and equal lines, so that those things should not be lost.

Before this war, to hope for an army bearing any appreciable relation to the size and responsibilities of our Empire was hopeless. The greatest obstacle to that was not expense, not disinclination, not the lethargy of luxurious national wealth, not obstructionist or vote-catching members, not secret Teuton influence. The greatest obstacle to a large British Army in July 1914 was Oliver Cromwell.

It was above all the deep-seated mistrust of a standing army, as strong as ever, after what is the short lapse of two and a half centuries to the most conservative nation in the world, that declared rigidly for small land forces.

Since then however, times have changed radically. In four short years, thanks to the Cause above all, the Nation and the Army, or rather the Empire and the Army helped largely by conscription at home, have become bound and united together in a way that could never before have been either possible or foreseeable.

It is hoped therefore that this short digression into History may be pardonable, as furnishing the grounds for hope that after the lesson of this war we shall have an army of at least an appreciable size; and it follows that the peacetime manoeuvres must be on a correspondingly increased scale.

In examining future manoeuvres, distinction may be made between principle and detail.

Considering Principles first, there seems no need for change in any save one. In that one, namely the Main Object of Manœuvres, a radical change must be made; or, if haply it does not constitute a radical change, then at least a radical pronouncement, admitting of no misunderstanding, must be made on the subject. Herein the second and third lessons of the war are concerned.

In pre-war days one often heard the complaint in smaller units:—"We are not learning anything from these manoeuvres: we're only having a great deal of extra trouble for the benefit of the Staff, we're only the Stage Properties of a Staff Ride". The Commanders were included under the generic name of Staff.

That, which is incidentally in entire accord with Count von Bernhardi in his "Germany and the Next War", is precisely as it should be.

The reply ought to be "You are quite correct, you *are* only out for the benefit of the Staff; and you are not learning anything from these manoeuvres save the minor details of co-operation with other arms because, being good soldiers, you had nothing else to learn from them when you came to them. Your Staff cannot be trained on paper any more than you can; and all the trouble you are being put to now for their experience will be repaid a thousandfold both to you, to your Staff, and to your Empire, the next time that you and your Staff go on service together".

Von Bernhardi is also incontestably right where, in the same book, he says that large-scale manoeuvres ought to have nothing more to teach to the soldier of a unit.

Good staff work is a vital essential to the success of a campaign: it can only be attained to by thorough peacetime practice; and thorough peacetime practice cannot be obtained with insufficiently trained troops. You cannot learn to ride on a horse that is learning to walk.

In future the principle will have to be enunciated and fully maintained, that Manœuvres *are* only for the benefit of the Staff;

and the Staff must be most carefully trained to be ready to take the fullest advantage of them.

From principles, I pass to details. The changes in details of Manoeuvres may best be summed up by the enunciation of certain postulates, not necessarily for reform, but rather for Adaptation.

The first of these postulates may be taken separately, as it is the direct consequence of the change of principle already advocated, and is rather a preparation for manoeuvres than an integral part of them.

The first postulate is, that far more complete training must be carried out within the unit, before that unit goes on manoeuvres.

The officers and men of units should have nothing to learn from manoeuvres save such final details of co-operation as are practicable, and they should also watch the Staff work as far as possible. This will involve much more active work, route-marching, billeting, and bivouacking away from barracks, than has hitherto been the custom; and as a consequence it may either cut down considerably the time actually available for manoeuvres, or, preferably, involve more concentrated training within the unit. That can only be made clear by later consideration when the time arrives; but civilian and soldier alike will have to work a good deal harder in post-war than in pre-war days.

The other postulates I would make are:—

- (i) Adaptation to new tactical weapons.
- (ii) Extension of the Manoeuvre Area and Forces.
- (iii) Increase of Reality and Movement.

These may be examined seriatim.

- (ii) Adaptation to new tactical weapons.

This is an obvious postulate. Manoeuvres must include a wealth of tactics, and tactics must vary with tactical weapons. What is indicated here is rather the employment of, and the co-operation of other arms with the latest tactical troops.

Not only should Tanks, Aeroplanes, Motor Machine Gun batteries etc etc be given sufficient play in future manoeuvres, but also any later weapons or formations too, such as our own

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equivalent "Sturm-truppen" which we shall undoubtedly require before the end of this war, if we have not got them already. At the same time my first lesson must not be overlooked, and the elder forms of manoeuvre still useful must be by no means neglected.

It will be impossible to include all arms in all manoeuvres: what can be done is to embrace as far as possible all the different phases of warfare in a few definite groups of manoeuvres; and to practice the co-operation of all arms as much as possible and with as many troops together as possible at each manoeuvre-group. This will also carry out the fourth lesson of the war.

(iii) Extension of the Manoeuvre Area and Forces.

This will exemplify the second and third lessons of the war.

As has been said already, it is hoped that after this war we shall have a much larger army and consequently much larger forces available for manoeuvres. This will be of the greatest benefit to higher commanders and staff alike.

It is difficult, often impossible, to present adequate problems to well-trained commanders and staff with small forces and within a restricted area of small dimensions: the possible, alike of friend and of enemy, becomes far too nearly of the nature of a certainty. A wide area and large forces would increase immensely the possibilities for real training of commands and staff; and to facilitate matters, billeting, to which all Europe must have grown pretty well inured these last four years, should be substituted for standing camps of known locale; and bivouacking made far more use of than hitherto.

Under these circumstances too, the problems of Transportation (5th lesson of the war) will assume certain real and definite dimensions; and the benefit to the training of those concerned will be proportionate.

The expense of all this will undoubtedly be great, if judged by pre-war standards; but it will still be but an exiguous item in the bill of National Insurance against a repetition of the strictures of the present war.

iv. Fourth Postulate:—Increase of Reality and Movement.

To a certain degree this is merely a summing up of the previous two: what I would advocate as a new measure would be as rigid an abolition as possible of "Skeleton" and "Make-believe" conditions.

Skeleton enemy can only afford their adversaries practice in certain phases of operations, and at best can usually, so to say, only shew them one side of the picture. Theoretical casualties without evacuation give a certain amount of training to harassed commanders, some little to imaginative umpires, but none whatever to the medical units. And so on.

In the manoeuvres of the future it is to be hoped that a far greater degree of realism will be aimed at in the matter of substituting actual for theoretical work; and that the training grants will allow a far more liberal use of, and freedom with, material than heretofore.

Another point of realism which might well be given greater prominence, is the question of the Personal Equation. In his before-quoted book, Ole-Luk-Oie gives us a splendid illustration in his story of the Chief of Staff who came back. In modern (pre-war) manoeuvres, I wonder how many others besides myself have heard this:—"Oh, I'm going to fight old So-and-so this year within the usual limits of ground. He always does this and then that."

In the future manoeuvres it is greatly to be hoped that at least the high commanders, and their staffs as well, will only be designated at the last moment; also the terrain; and thus foregone conclusions will be completely avoided.

One last point under this postulate. It is also to be hoped that after this war Combined Land and Sea operations, which have been such an integral feature of our own share in the war, will be practised far more than hitherto. They were conspicuous mainly by their absence from almost all the big manoeuvres prior to 1914.

#### **PART IV. THE HIGHER PEACE TRAINING OF THE FUTURE.**

The aim and object of this must be the practical application of the second and third lessons which I have named above:



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this with the Central Powers: command for command, almost every German general was some years the senior of his western adversary, in the British sector at any rate.

What, frankly, was the difference between the two? The British Generals had perforce been promoted quickly during the the expansion of our miniature army into one real in numbers: their German opponents had for the most part climbed steadily and by measured steps up to where they stood, amassing in each step some years of experience in a succession of increasing commands. And whose experience at the end should ordinarily prove the more valuable?

It is just this gradual promotion by merit from command to command under constant observation and in the constant amassing of experience, this and this alone, which is by far the greatest asset that any Nation could ever have in her Higher Peace Training of her soldiers.

Applying alike to commands and to Staff, it was an unattainable thing for us prior to 1914, since it presupposed at least the existence of sufficient forces, to give the commands and appointments to fill.

That deficit however we can in the future confidently hope to make good; after this war of costly lessons; and so with us too, the first great method of our Higher Peace Training should be this holding of successive increasing commands and staff appointments with concrete forces, under periodical observation and test.

Now to consider the two phases of this method, namely actual training, and selection for command or appointment.

Firstly, as regards actual training.

The aim and object of Higher Peace Training may be taken as being a principle made up of two component ones. Firstly and most importantly it is intended to discover, train, and exercise qualified commanders and staff in the handling under field conditions of their extensive commands: secondly it aims at ensuring, both in theory and by practice, the smooth co-operation of large numbers of troops of all arms in the field.

its salvation can only lie in our national acceptance of my sixth lesson, namely the necessity of a large army.

Commands and staff cannot be adequately trained upon paper alone. Much can be done by the careful and systematic inculcation of theory; much help can be given or rather gained in the peacetime administration of large and wide commands; but the final test of commands and staff alike can only be carried out in the field, and the only colorable approximation to this that can be obtained in peacetime is that afforded by big manoeuvres.

Given Higher Commanders and Staff of recognised status, the higher peace training will present two phases: that of actual training, and that of selection (for higher command or appointment).

But before considering these two phases, it will be first necessary to go into the question of those actual positions of command or staff themselves.

If we are to have any men at all who are fit for high command or administration in time of war, it is a primary necessity that there should be as nearly as possible a series of corresponding commands and appointments (in size if not in number) requiring filling, and giving practice, in peacetime.

As was pointed out before, that was not the case with us in 1914.

Not only in this war, but in almost every case in all other recent wars, the successful generals in high command have been those who have advanced deliberately and not unduly hurriedly, from step to step in the command of increasingly large units, culminating in their actual war appointments. The same applies to Staff work.

There have been notable exceptions: there always will be; but the principle holds good nevertheless.

At one time at home, particularly in a certain section of what has been called the "Uninspired" Press, there was a great movement in favour of young generals; and the energy and activity of youth were cried up to a premium. We never notice

this with the Central Powers: command for command, almost every German general was some years the senior of his western adversary, in the British sector at any rate.

What, frankly, was the difference between the two? The British Generals had perforce been promoted quickly during the expansion of our miniature army into one real in numbers: their German opponents had for the most part climbed steadily and by measured steps up to where they stood, amassing in each step some years of experience in a succession of increasing commands. And whose experience at the end should ordinarily prove the more valuable?

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That is to say that taken as a whole, it is nothing but the schooling of the commanders and staff. No change in this general principle is likely to prove advisable in post-war days; but considerable modifications as to the method of its application seem to be called for, both as regards training by theory and by practice.

Regarding theory, the study of strategy and Grand tactics should be made compulsory to a deep degree amongst the higher commanders and staff. The Examination System is a deplorable if necessary evil in many phases of Military life: here it could be most welcomely and efficiently dispensed with by the establishment of what we have not now got, namely a War College, for really senior officers only.

Prior to 1914 many objections could have been raised to this. To begin with, Instructors would have been a difficulty, when our most senior soldiers were, in the light of their experience of really wide and big commands, for the vast majority so relatively junior. Then what was the use of teaching strategy and command on a big scale to a large number of officers, out of whom half a dozen at most seemed likely ever to command more than a pair of Divisions in the field? And so on.

Now however, all that is changed. With the future probable size of our armies we shall still require our Staff Colleges for the training of our junior staff officers and our courses at other military schools for the commanders of various units; but the great necessity will still remain, and should be easy to deal with, of a more senior institution, wherein our senior commanders and staff may be suitably instructed, and their work co-ordinated from the beginning, by that instruction being given on sound and similar lines.

Moreover the entrance to this War College should be neither optional nor competitive; it should be compulsory for all those wishing to rise above the rank of Lieutenant-Colonel; and only those who wished to leave the service in that rank should be allowed to forego it. Lastly it should be an obvious sine-qua-non that officers not shewing the required standard of profi-

ciency there should not be further considered for any higher employment.

Its examinations need never be at the mercy of one commandant nor of one instructor: they could best be conducted by a full board of responsible generals; and they could consist of as little of abstruse theory, and of as much of genuine practice, as might be deemed advisable.

Before leaving the subject of training in theory for that of training in practice, one more word remains to be said about the Staff Colleges. Under the third lesson it was pointed out that a Reserve of fully trained p. s. c. men was most advisable. This can only be effected by very greatly increasing the number of officers trained biennially at the post-war Staff Colleges; and this should be carried out systematically and thoroughly.

I now pass to the Practical side of Higher Peace Training.

Here a considerable intensification of pre-war degrees seems desirable; borne out by the second and third lessons of the war notably, but by them all directly or indirectly.

Intensification of practice, in the case of the higher commands and staff, can only be attained by more, longer, and larger, Grand Manoeuvres. There will be much opposition to this in some nations, especially in the case of the more rigidly economic ones; but the necessity must be faced.

In normal years of peace both Commanders and Staff alike spend far too great a proportion of their time and mental energy in what is better called Office work than Administrative work, and far too little in active staff and command work. The higher the formation, the more this is usually the case, and the worse the results. The Brigadier does certainly "get hold of" his brigade during a certain appreciable if diminutive period of each year, after battalion training and evolutions have been completed. The Divisional Commander has the active handling of his Division for less time still, after Brigade training is over; and the holder of any higher command may handle his command collectively for a few days in the year or not at all.

The resulting lack of sure grip and of confident command is obvious. This should be very radically changed after this war: even if the time set aside for manoeuvres has still to be reduced to a short one, yet each possible unit should be sent to them, so that each higher commander may handle the largest practicable number of troops for the longest possible time. For only by that can he and his staff become completely fit to direct operations in the field.

So much for the intensification of practice. Before passing on to the other phase of higher Peace Training, namely the selection for the higher posts, one more word may be said which is really anent training in theory, but which bears closely in its effects upon practice; and that is the great benefit of "Refresher Courses".

I have discussed already the creation of a Staff Reserve: not only is that required, but also Staff Refresher Courses, or rather refresher courses, both at the Staff and the War Colleges, for all those who have been there before, as far as practicable.

Short refresher courses exercise a good influence in a wide diversity of ways. They create and promote new ideas, they maintain military education abreast of the times, they reveal fresh fields of thought; and, above all, they tend to combat the stagnation that must heavily threaten to set in, during a protracted tenure of the same class of appointment.

Now for a very few words on the last phase of Higher Peace Training, namely the Selection for the Higher Posts, whether of Command or Staff work. This appears to come fairly within the subject under discussion, since it is the only standard by which the higher peace training carried out by each individual in responsibility is judged.

It is neither desirable, nor in the writer's case less than gross presumption, to attempt to lay down now any definite ruling as to the future procedure of selection; but one plea seems to call for consideration.

Namely: that Manoeuvres should play a much greater part than they have hitherto done in the official estimation of the value of senior officers.

In certain continental nations this has actually been carried out to a great extent in the few years preceding the war, far more than with us, largely no doubt because the continental manoeuvres were *de facto* so much more extensive affairs than ours, and so gave a fairer basis of judgement. In more than one of those nations, the Grand Manoeuvres were in a great sense the Promotion Examinations of the senior officers taking executive part in them.

This principle seems most commendably worthy of adoption. Nowhere during peace are the soldierly (or unsoldierly if such) qualities of high commanders and staff so practically, quickly, and effectively, tested as on manoeuvres; and the more extensive and realistic those manoeuvres are, the greater is the value of the test.

With post-war manoeuvres then, carried out on the grander wider lines that I have hopefully advocated, the test would genuinely possess a solid worth. One reservation must necessarily be made: namely that Manoeuvres shall not be the sole test.

Luck may play a great part in them occasionally, just as it does in war. Let that then be counterbalanced at least to a considerable degree, by the board of Generals of the War College.

Those two things, the War College Board, and the very systematic and thorough analysis of the conduct of the Grand Manoeuvres, should in future give us possibly the fairest and most efficient means of Selection devisable; and Commands, Staff, and Troops, should benefit directly and correspondingly.

In the matter of the manoeuvres also there will be great benefit accruing. The more stake the commanders and staff have in manoeuvres, the better will those manoeuvres be conducted.

And so will come a corresponding increase in efficiency not only in the practical part of Higher Peace Training, but in one phase at least of the peace training of all units and individuals from the highest to the lowest; for efficiently conducted manoeuvres benefit all who take part in them.



**Prize Essay.****PART V. CONCLUSION.**

In selecting a motto for this brief article I have chosen that of the greatest British Soldier who ever lived; not in any reference to the compass of such halting and tentative recommendations as have so far been made, for it is so manifestly beyond the power of any one individual thoroughly to prescribe for a remedy of past deficiencies in the subject under consideration.

The motto is chosen as that which must be the rule of life of each single individual concerned in post-war training: more than that, of every post-war British Soldier.

Since this war developed, the Empire and the Army have been bound up and amalgamated in unity of being, unity of purpose, and mental outlook, in a way that we ourselves never dared to hope and our enemies never paused to fear.

After the war, each civil inhabitant of the Empire is going to be extremely thorough: it will take him more than a generation of wholtime work at that to make good even the major strictures of this war.

With the Army it must be the same. This is essentially an age of specialists: every man his own trade and the devil take each hindmost. Prior to 1914 in our old Regular Army both the army as a whole and each man of it individually were specialists at soldiering. To say the same of our armies as they stand in the field today would be mere futility.

After the war however, when more settled conditions allow of the definite embodiment and the systematic training of the future army, it is then that we must look above all to self-sacrificing thoroughness and never refuse, either in justified national expenditure or in individual effort, anything that is necessary to ensure us our only protection against a repetition of these last four years, which is an army as efficient as the "Perfect Miniature" of 1914, but in real relation to the grandeur of our national interests and responsibilities.

What the size of our Army of the Future will be, it is impossible to say. A great deal may depend upon the nature

of the Peace Treaties which we are able to enforce. And in this connection it is obvious to the slowest thinker that, knowing us of old, the Central Powers will make their peace terms appear as showy as possible, with a view to re-deluding us into a reduction of armaments.

Yet whatever the size or the nature of that future Army be, the lessons of this war have at least taught us this: that in all their training and in all their duties, but with the best example set by the highest men—and that is in Higher Peace Training—the motto of every soldier, from the highest to the lowest, must be the one word "Thorough".

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**NOTES  
ON  
TRENCH WARFARE IN FRANCE.**

LECTURE BY CAPTAIN B. MC. M. MAHON, D.S.O., M.C.,  
2/25 PUNJABIS.

Trench Warfare has gone through many different stages since the War began, both as regards the formation of the trenches themselves, the method of holding them, the weapons used in the fighting, and last, (and perhaps the greatest change has taken place here) in the degree of comfort which the troops holding them have been able to enjoy.

A lecture on "Trench Warfare" going into all details would last for days. It would include such questions as the original sighting of the trenches, the digging of front line trenches under fire and the construction of Reserve Lines far behind the front trenches, the making of strong points, wire entanglements and other obstacles, Dugouts, emplacements for T. M. and Machine Guns, Observation and snipers, posts, Dumps for Tools and S. A. A., also the question of Trench Drainage upon which so much stress is now laid. Then comes the question of holding the line.

During the first year of Trench-Warfare the general rule was to hold a continuous front line as far as possible with men, in every fire-bay. After the battle of Loos, owing apparently to our losses, we no longer held the line continuously as before, and small posts of 4 to 7 men were placed at intervals of about 30 to 50 yards along the trench, which itself was still continuous.

Between Loos (i. e. 25th September 1915) and March 1916 the British trenches were held more lightly, I think I am right in saying, than at any other time, except the period of transition from open warfare to trench warfare after the Aisne battle. For instance, in the green crassier sector at LOOS in January 1916, my Company had a three hundred yard front and a total strength of 25 men.

The wire was very bad and in some places there was none the nearest part to the Bosch was 8 yards at a place where w

had our trench in one ditch of the Lens-La Bassée road and he had his opposite in the other ditch. In no place were we more than 40 yards apart.

If he had attacked or raided in strength we should have had rather a poor time. The Reserve Company was not more than 40 strong and the Reserve Brigade which was the next support was about  $2\frac{1}{2}$  to 3 miles further back.

One night three Bosch did come over to give themselves up. They said they had considerable difficulty to find any-body to give themselves up to, and eventually they had to wake a Sentry-relief whom they found. They were very surprised to find how thinly we were holding our line!

The "Continuous" Line was recognised again in the spring of 1916 when new Divisions and drafts came out, and continued as the general rule till the Somme. It was not due to loss of men that another system of holding trenches came in after the Somme, but it was due to the enormous increase in Artillery, which turned a closely held trench into an absolute death trap.

Small posts again were adopted, as a remedy. In the Oppy-Gavrelle Sector an experiment, which in this particular case proved satisfactory, was tried of making a system of detached strong points. These posts were established at a distance of about 300 yards apart.

The front line between them was kept "*passable*" only, but the wire was kept in good repair all along. In day time the unoccupied parts were *ostentatiously* occupied with the idea of bluffing the Bosch. Double Blocks were kept ready to stop any enemy raiders from working their way into the strong point through the unoccupied trench. The Artillery registered *our own* unoccupied trench-line, so that if the enemy entered it, he could be blown out again.

Excellent Dugouts were made in the strong points themselves, which were sufficiently deep to withstand any shell fire, (except perhaps 3 or 4 direct hits by an 8" inch), and they were sufficient in number to give protection to the whole garrison. Every precaution was taken to "Camouflage" the existence of

the Post. The ground in front and between each post was covered by cross-machine gun fire.

About 500 yards in rear of this first line of strong points, there was a similar line but with only half the number of posts.

The Reserve line was another 500 yards in rear, a *continuous line* strongly wired, into which it was estimated that the Reserve Brigade could be put in time to meet the enemy, in the event of the posts failing to stop his attack. If the enemy had broken through the posts, he would therefore have come up against the continuous line which was sufficiently far back for his artillery not to have entirely obliterated it without a long bombardment.

This is very different state of things to that which existed at Festubert in April 1915, when the front line was a line of sand bag "grouse-butts", which we were always endeavouring to join up into a continuous breast work and for a considerable distance succeeded in doing. Then there were men in every Bay. Two companies in front line with one in immediate support were in a farm house and outbuilding, not more than 250 yards behind the front line, and the Reserve Company in another farm "Dead Cow Farm"-(reputed to be the one made famous by Bairnsfather), on the other side of Festubert village about 1 mile behind the front. There was a "Keep" established in a house at the main cross roads of the village street, and but for this the support and Reserve Company had no special fortified position to hold. Their job was to make their way as best they could to the front line in event of attack.

There was a dug-out in the "Keep", but no-where else throughout the system.

With the artillery now in use the whole regiment would under the condition above described have been wiped out in a couple of hours bombardment or less. The breast-works, presenting as they did a perfect target for the artillery, would have been demolished by the Heavy Barrage in a very short time, and as for those companies cheerfully living in the farms within easy rifle fire of the enemy, well, it would have been suicidal to go into

any building (to stay)-during the last 18 months unless it had a very strong cellar, and that very firmly supported with struts with burster layers on top.

In the foregoing passages I have endeavoured to show how the method of holding trenches changed.

The different stages can be more or less roughly divided into 3 periods.

(1) That time before the battle of LOOS, when artillery was comparatively speaking non-existent, and people used to enjoy themselves in the trenches, except those at Ypres, where tension has practically never relaxed.

(2) After Loos till the Somme when Bombs, Rifle grenades, Trench Mortars and increased artillery became sufficiently perfect to disturb the peaceful routine, and when, last and not least, the art of mining was brought to a high pitch of perfection.

3. The third stage from the Somme to the commencement of the Present German Offensive.

In the Somme battle, the new "Crater-Positions" or converted shell holes first came into use. After the Messines and Flanders battle the old trenches were battered beyond recognition in most cases, and the "Crater-positions" were the only possible form of defence. The name is very expressive and almost in itself explains the system, which was a distribution in depth over the area of the front liable to intense barrage fire, in small parties-(perhaps a platoon in one place, 2 sections in another, one section in another). The intention being that (1) thus spread, the enemy could not concentrate in them with his artillery and (2) if he attacked, his forces would no sooner get rid of one set of defenders than they would bump on to another.

This method of holding the front positions, necessitated by the intense concentration of Artillery, was first systematised by the Germans.

As soon as the signs of further offensive action on any large scale disappear, which is indicated chiefly by the removal of the mass of Heavy Artillery to another part of the front, the "Crater" system at once becomes modified. Communication trenches are

dug and posts linked up, wire entanglements put out and a general move towards the formation of a trench system is made.

Except that it is the only solution hitherto envolved for keeping sufficient men alive to repel an infantry attack after a heavy barrage, there are very few advantages and a great many disadvantages in this method.

Movement in daylight is prohibited. If it is wet, the conditions under which the troops have to exist is often appalling, but, if they try to better their position by doing a little work, they simply give the signal for their own extinction by shell fire.

Communication is extremely difficult, the wires are continuously broken by shell fire and runners are unable to take messages, as by doing so they reveal to the enemy the whereabouts of the different posts.

At night it is very hard to find the various positions, there being no communication trenches and the ground, every yard of which is *some* part of a shell hole, being very difficult to traverse. The complication in reliefs is enormous. Very often the relieving Battalion has become disorganised by the enemy's "Back-Barrage". It was in the Flanders battle (July, August and September 1917) the constant practice of the enemy to shell unceasingly at a steady rate of fire during the whole night on all points, when relieving troops were likely to approach. It frequently happened that the guide of a platoon was knocked out, thus leaving the platoon lost and impeded with casualties.

Putting aside the disorganising effect of the artillery, the conducting of all the small parties of the relieving battalion to their correct positions is a most difficult matter and the disadvantage of this "Crater position" system, unless rendered necessary by the Enemy's artillery fire, are too obvious to need further comment.

Apropos of the difficulty of finding the way about at night in this kind of Warfare. When we were relieving the ".....shire" Regt. a Company officer of their's, showing one of our Company officers his positions, took him into the Bosch lines. They were suddenly aware of several Bosch looking at them from a shell

hole position a few yards ahead. Before they had time to decide what to do, one of the Bosch said in English—"You English- You go back—*quick*". They took his advice, and got back without being molested.

Why they were treated so generously it is hard to say, unless it was that the Bosch thought that, if they tried to capture them, a "Scuffle" would result, which would give the signal for the S. O. S. and bring down our barrage on them.

Among the different methods that are employed by either side, for causing loss and shattering the "moral" of their opponents in trench warfare, are raids—with or without artillery preparation, systematic bombardments of limited areas by either Field Guns and field Howitzers or by Heavy Artillery, or both combined-bombardments by light or heavy Trench Mortars, with rifle grenades as an additional annoyance, not to mention Machine Gun barrages and rifle fire; in quiet times snipers become particularly noticeable, also Gas attacks either in the form of gas shell bombardments, or, as it was first used, in the "Cloud" form, when it is let out of cylinders from the front line trenches.

These Inventions are all quite sufficiently destructive and demoralizing, for the man in the trench, but there is nothing more thoroughly disturbing than sitting on top of an enemy mine, and in spite of all precautions there is likely to be more concentrated chaos in the trenches created by a mine explosion, than by any other kind of operation.

Instantaneously with the explosion of the mine the hostile artillery opens up an intense bombardment on all the front support and communication trenches in the vicinity, and under cover of this the enemy Infantry advance to get possession of what they want of the "Crater"—(sometimes the near lip only—sometimes the forward lip). Our artillery, immediately the report is given them that the mine is "up", open on the enemy trenches in the immediate vicinity and on No man's Land the shooting is necessarily always very close and casualties from "shorts" are almost inevitable.



Our raiding party go forward as soon as possible after the explosion to dispute the enemy occupation of the "Crater", and after a scrap, in which one or other side are content with what they are able to get, both sides dig in on the mound of the newly thrown-up earth and the Artillery dies down. The whole performance is generally finished in an hour. The number of troops affected is usually small—a company or two—and the result of the affair is often only of local importance, but the men actually employed go through an engagement as severe and trying as it is possible to get anywhere.

Mining operations on the British front started early in 1915—at Ypres, St Eloi and Givenchy. The spring and early summer 1916 saw the height of mining Operations—especially along the Vimy Ridge, which at that time was sometimes officially referred to as the "Craters". Above Souchez on the Vimy ridge in May 1916 we had 4 mines put up (3 Bosch and one of ours) on the brigade front in a tour of six days. This shows the intensity of the mining operations at that time.

In mining more than any other kind of operation we have proved ourselves far superior to the Bosch.

The fact that we were able on the 7th June 1917 at Messines to put 19 mines at one moment under his lines, without his being able to prevent it, is sufficient evidence of our miners' superiority.

One mine—the largest mine on record—kept 250 men employed continuously under ground—to my knowledge for a period of 4 months, and it may have been longer.

In the scheme for "Blowing" this mine it was laid down that all trenches were to be cleared for 300 yards from it, and all dug-outs in the Division's Sector had to be unoccupied.

Whatever the prevailing conditions may be in Trench Warfare, there are certain questions which are always applicable in taking over a Sector. The most important are:—

(1) The comparative strengths of the outgoing and relieving Units (it not at all infrequently happens in France that there is a difference of 200 or 300 rifles between the two units. At Passendale the .....th Australian Infantry with a Trench-strength of

800 took the line over from our battalion which numbered only 140, and it was with the greatest difficulty that it was possible to find places to put them).

(2) the Dispositions

(3) Position and zones of fire of Lewis guns and heavy machine guns.

(4) Artillery Liaison—

There is usually a artillery liaison officer with each front line battalion, but in addition to his connection with his battery and Brigade, the battalion has direct call on all artillery. The calls for different kinds of artillery and different intensity of fire are always in code, and they are often rather confusing.

(5) Communications. Between Battalion Head Quarters and Brigade—Battalion Head Quarter and Companies and lateral communication.

Particulars of No. 2 phones (Fuller phones) Power-buzzers., I. T. instruments—and anything else in relation to communication or intelligence.

(6) Position of the Stokes guns, Machines, Trench Mortars and "Flying Pigs"

(7) Gas appliances.

(8) Arrangements in connection with the S. O. S.

(a) Whether rockets or Very lights

(b) How often changed and where

(c) Position of S. O. S. stations.

(9) Enemy activity.

It is necessary to find out when and where he "strafes"—the Bosch is usually extraordinarily regular in his hours of "strafing". The outgoing Unit can usually give fairly definite information as to these times. Also, if his snipers are good and where the danger points are. It is also necessary to find out his methods of patrolling and if he is often out.

10. Medical Arrangements.

Position of Aid post, and method of evacuating wounded.

11. Delivery of rations and water.

Best way for transport to come, and whether pack Mules or wagons most suitable.

## **Trench Warfare.**

### **12. Cooking arrangements.**

In the early days of Trench warfare each man used to do his own cooking. In an established trench system now, a dug-out some where in the reserve line is found for a cook house—(usually 1 per Company) and the food is taken up in 'Food Containers' after the fashion of Thermos Flasks to the front line. In this manner throughout the winter 16'17, our men got 6 hot meals every 24 hours, i. e. a hot meal every 4 hours, and I think most other Divisions did the same.

13. A certain amount of paper has to be taken over, Maps, aeroplane photographs, suggestions for work, wiring etc., and the Defence Scheme, and in many sectors a "Log Book" is kept up.

14. The S. A. A. and Bomb Dumps number, position and establishment.

With regard to the Routine in normal Trench warfare, in a quiet sector, the 24 hours is usually roughly divided for each man as follows:—(a) 8 hours sentry duty. (b) 8 hours work, (c) 8 hours for rest and food. *Not* of course consecutively.

Half an hour before Dawn—"Stand to", immediately after Rifle cleaning and inspection. Then Breakfast, followed by a general clean up. Then work till about 11. 30. A. M., Mid-day rifle and ammunition inspection. After this Dinners.

Working parties for the night and patrols should be detailed if possible before dinners. Every one should see by day what he is going to do at night.

All Tools and material should be brought up in day light and deposited as near as possible to the place where they are to be used, provided this can be done unobserved by the enemy.

In the afternoon those going on working parties at night should be allowed to rest.

Half an hour before dark "Stand to" immediately preceded by rifle inspection.

At "Stand-Down" the parties get out as quickly as possible, and do from 4 to 5 hours work. Men are not allowed in Dug-Outs at night unless ordered.

In Trench warfare the 3 hours preceding Dawn are usually the most deadly monotonous.

You are by no means free from returns in the trenches. The following are usually rendered daily by companies:—

1. Trench Strength 2. Casualties 3. Burials 4. Situation and wind report. (*3 times a day*) 5. Intelligence (once a day or as often as necessary) 6. *Progress Report*. Relating to work and wiring either daily or bi-weekly 7. *Patrol report*, rendered immediately patrol returns. 8. On taking over, or on relief (a) Lists of ammunition, Bombs, Tools etc: Gas appliances etc. (b) Certificate of "Clean Trenches.

*In winter.*

Daily certificates that (a) men's feet have been oiled and dry socks issued.

(b) Six hot meals have been supplied.

There are many ruses practised by both sides in trench warfare time, and there are many precautions which one learns to take automatically, such as:—

1. Never put your head over the top twice in the same place if a sniper is at work.

2. If the enemy start firing Very lights point blank at our trench keep low; it means 9 times out of ten that he is trying to get a silhouette for a sniper to fire at. (The light pitches behind our line and every one above the parapet stands out clearly when it flares up.)

3. If the trenches are within 30 or 40 yards, never fire a Lewis Gun from the same place twice.

Several times I have known the Bosch to bring up a heavy machine gun and get it laid on the Lewis Gun and, when it opens, simply plaster it.

4. In a bombardment a bad Dug Out is worse than no dug-out at all. Any one, who has seen a dug-out collapse with men inside it, doesn't want telling to sit in the trench rather than run the risk of getting buried alive.

5. If on patrol and a Very light goes up, stand absolutely still to avoid detection.

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## **THOUGHTS ON MACHINE GUNS AND AUTOMATIC RIFLES.**

BY

LT.-COL. B.N. ABBAY, 27TH LIGHT CAVALRY.

Recently a Battalion ordered to take part in some small operations in the hills deliberately left their Lewis guns behind, considering them useless: they would not be bothered with them. This lack of appreciation of the power of Lewis guns and necessarily, of machine guns can only be due to a lack of knowledge of the use of Lewis and machine guns in hill warfare.

The writer has recently spent 2 months in studying many different sorts of hills, of heights varying from a few hundred feet to many thousands, and in no case did he find a hill where the employment of Lewis or machine guns would not have greatly helped the attackers.

The place of the Lewis gun in attack is in the firing line, where it can be used, not only for frontal fire but for fire, across the front; but it should never advance along the top of a spur except in most exceptional cases, because, however carefully a Lewis gun is carried, it will be identified by the enemy holding the position and they will do their best to attend to it.

In the attack Lewis guns should work in pairs and, when advancing up hill, move one each side of the Spur so that they can:—

(a) Bring cross fire to bear on the crest of the spur, if the enemy should attack down it.

(b) Fire across the reentrant and assist the advance of the attackers on their flank or help them resist any attack.

(c) Provide covering fire for the advance in their actual vicinity.

(d) Escape the identification which their appearance and noise when firing makes very probable.

It is essential that they should know exactly what portion of the position they are to attend to.

In the assault the Lewis guns must rush to the enemy's position and open fire on the retiring enemy, before he has time to

disappear in the *extraordinary way* he does. The value of a Lewis gun in retirement is even greater than in the advance, and they should be worked in a similar manner, remembering it is harder to get away with a Lewis gun than with a rifle.

No Lewis Gunner is fit to be on piquet unless he can rectify every stoppage and carry out ordinary repairs, blindfold; if he cannot do this, he is a delusion and danger. Rests for night firing are easily made for Lewis guns with pegs or stones. It is better to use 2 Lewis guns firing from night rests, to effect cross fire, than to attempt to traverse with one or both, because movement at night means loss of accuracy.

At night Lewis guns can be used (*a*) to bring cross fire to cover the front (*b*) to fire on a Commanding point, which it has not been possible to occupy (*c*) to cover a possible line of attack for the enemy.

Night firing with Lewis guns is likely to be as dangerous to friend as foe, if practice is not frequent and great care is not taken to organise and explain in daylight the possibilities and requirements of the darkness.

In hill warfare in India it is not feasible to employ heavy shell fire to keep the enemy down until our Infantry can close with him, but machine guns can, if properly handled, achieve considerable success, and are in this case most pronouncedly guns and not automatic rifles, and if ever enfilade fire was an essential for effective M. G. action, it is in the case of the offensive in hill warfare. Owing to difficulties of terrain, machine guns will generally come into action at very long ranges, and if, on the flat, the frontal fire of machine guns at long range is insignificant, unless in the numbers required to form a barrage, a number not likely to be available on the Frontier, how much more futile will it be, if the target is the narrow crest of a high and distant hill. So insignificant will it be that it will almost be a waste of fire. But if the machine guns come into action on a spur or hill and fire to a flank, even at extreme ranges, we shall get a very different effect; we shall in fact get a searching flank fire. Even if a position for M. guns has to be taken as a preliminary to the main attack, it will, I believe pay in the end.

## ***Machine Guns.***

Now it is a machine gun rule that to fire single guns at long ranges is a waste of ammunition, the longer the range the more guns are required and they are employed with combined sights; in fact by formulae we can find the number of guns required at a particular range.

Now a number of guns firing frontally at a crest line will make a great deal of noise and waste a great deal of ammunition, but the same guns enfilading and searching the same crest with "combined sights" is a very different proposition and will place the enemy in a very unpleasant position.

No doubt it is not possible to concentrate many machine guns together but a clever machine gun officer will have no difficulty in placing them so that, with allowances for their not being in line, "combined sight" effect can be obtained.

For such fire to be effective the following considerations are essential.—

- 1.—Time to place guns and work out their ranges and levels.
- 2.—An infantry escort, so that their fire shall not be interfered with.
- 3.—Reliable instruments, without which accurate fire cannot be opened without delay and waste of ammunition.
- 4.—A careful study of maps and aerial photographs. As our infantry nears the crest, our machine guns are deflected the necessary degrees and we shall then have a light barrage effect, but quite sufficient to make it very unpleasant for the tribesmen when they retire.

The writer is of opinion that only a small proportion of machine guns should be rushed up to harass the retiring enemy, because the latter will furnish a poor target and one more suitable for Lewis guns;— a few guns should, undoubtedly, be sent up, in case the enemy offers a good target at extreme ranges. The best result will undoubtedly follow the employment of as large a proportion of machine guns as possible for covering fire. Guns to be rushed up cannot, of course, take part in the covering fire, if they are to arrive early at the position.

The placing of machine guns on the defensive in the hills follows the ordinary rules and is not difficult.

Machine gunners who are not perfectly physically fit will be useless in hill warfare. General Baden Powell's definition of a Scout's fitness i. e. that he can climb 2000 feet, without pausing to take breath, is the ideal test for a M. Gunner with his gun.

The coolies on the N. E. frontier, a far more difficult and rough country than the N. W. Frontier, have a very clever carrying arrangement, one most suitable for guns and used by the writer for carrying ammunition, and, most important in these days of every kind of economy, extremely cheap.

This arrangement could be easily adapted to both machine guns and Lewis guns.

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## **"COMMUNICATION IN THE FIELD"**

LECTURE BY LIEUT. COLONE<sup>L</sup>, C. J. TORRIE, D.S.O.

Commandant, Signal Service Depot.

I have been asked to talk to you this evening on the subject of communications and the organisation of the Signal Service. My lecture refers more generally to communication on the Western Front and to the organisation of the home Signal Service whose methods have been, or are being, adopted in India.

I propose to divide my lecture into four parts and discuss:—

1. The function and organisation in the Signal Service.
2. The chief methods and means of communication.
3. I will explain a few of the difficulties the Signal Service have to cope with.
4. I will deal with the relations between the Signal Officer and his staff on service.

The duty of the Signal Service is to transmit the orders and reports entrusted to it to their destination, with the utmost certainty and the greatest possible speed, and it is a maxim in the Signal Service that a message handed over to it must be got through somehow. If one method fails, another must be tried, and no means left untried.

The objects to be aimed at in organising the system of forward communications are:—

- (a) To get information back and disseminate it.
- (b) To get orders forward.
- (c) To ensure the co-operation of all arms and units, especially between the Artillery and Infantry.

I would like to emphasize the fact that, in trench warfare, the essence of good system of Divisional Communication is that the Artillery should be efficiently linked up to the Infantry they are supporting.

### *Organisation of Signal Service.*

When telegraphy was introduced as a means of communication in the Army, signalling was undertaken entirely by the Infantry, Telegraphy by the R. E. There was a tendency to

separation between these two important branches which may well be called disastrous. With the advent of the Signal Service however, some few years ago, matters improved, but even in the early stages of the war there was a tendency, in some Signal Units, to consider that their duties began and ended with themselves, and that the Signal work of Infantry and Gunners was outside their sphere. This tendency has, I am glad to say, now to a great extent disappeared, and my own experience is that in no other service in the Army is there closer co-operation or more readiness to assist one another than there is in the Signal Service, but I would point out at the same time that it is the duty of the Staff to ensure that there always is complete co-operation and mutual assistance throughout.

We have found by bitter experience that no complicated system of communication will stand the stress of war. The system on which the Signal Service works is a simple one, and is that each formation is responsible for keeping communication with the next lower formation, while for lateral communication equal formations share the responsibility and divide the labour. For example:— G. H. Q. is responsible for the construction and maintenance of lines to Armies, the Army to its Corps, the Corps to its Divisions, and the Division to its Brigades.

As regards lateral communication, let us take the case of two neighbouring Divisions. The two Signal Officers concerned mutually agree on a dividing line, each then constructs the line up to the point agreed upon, where the line is joined, and each is responsible for the maintenance of the portion built by him.

A Divisional Signal Company is organised primarily with the view to providing a system of inter-communication throughout the Division for Battle. It is composed of 4 sections, and recently there have been added to it certain sub-sections for Artillery communication. No 1 Section of the Company, or Headquarters Section, is responsible for communication between Divisional Headquarters and the Infantry Brigades. The R. A. H. Q. detachment, attached to No. 1 section, is responsible for

communication from Divisional Artillery Headquarters to the various Artillery Brigade Headquarters. Nos. 2, 3, and 4 sections of the Divisional Signal Company, or, as they are more commonly called "Brigade Sections", are responsible for communication from Infantry Brigade Headquarters to their Battalion. The attached Artillery sub-sections, not yet introduced in India, are responsible for communication from the Artillery Brigade Headquarters up to Batteries. To put it shortly, the Signal Service is now responsible for communication up to Battalion and Battery Headquarters, but no further. Forward of this, normally speaking, the Battalion and Battery inter-communication personnel are responsible.

I would here most strongly urge that each Battery and Battalion should at all times have its full complement of trained signallers, and these should be considered as Specialists, and it is absolutely essential on service that this personnel should work in the closest co-operation with their Brigade Signal Section. This personnel should be trained in Visual by day and night, and instruction should also be given in the maintenance of lines, and every Battalion and Battery Signaller must be both Lineman and Operator, and, as so much depends on them, every opportunity should be taken to improve the standard of the reserve men, and to train up fresh reserves.

So much for the organisation of Signal Service. Now we come to the principal methods and means of transmitting information. They consist of:—

1. Telegraph and Telephone.
2. Visual.
3. Messenger Service.
4. Pigeons.
5. Wireless.

*Telegraphy.* The Morse system is employed, and, the Operator being highly trained, great speed and accuracy are obtained.

Taking all things into consideration, telegraphy in the field is the quickest and generally the most reliable means of communication.

**Telephones.** I would like to draw your attention to the ever increasing use of the telephone by the Staff. The elaborate system in France is now very extended and complicated. The Staff in France have found the telephone invaluable and an absolute necessity; to the Signal Service telephones are both a blessing and a curse. They save a lot of written messages and so ease off the work for Operators and Despatch Riders, but on the other hand they mean an enormous increase in the number of lines to be constructed and maintained. There are two great objections to the use of the telephone for the transmission of messages. The first is, you are very liable to get serious inaccuracies in these messages, and if the telephone, as opposed to Morse, has to be used for this purpose I personally always insist on such messages being confirmed by the first available Despatch Rider. The second great objection is, that telephone messages and conversations are very liable to be intercepted, which is a very serious matter if the subject is a secret one.

To give you some idea of the heavy traffic the Signal Service have to cope with on service, I would mention that in an Army Signal Office in France the average number of messages dealt with in the 24 hours is 5,000, and the average number of calls put through on the telephone in the same time is 2,500, i. e. 200 per hour, and probably 500 to 600 per hour during the busiest times of the day.

**Visual.**

Accuracy is aimed at before speed. I fear this very useful form of communication has been allowed to fall greatly into disuse, especially in France, the chief reason being the flat nature of the country our Armies are operating in, and the smoke and dust raised by heavy bombardments, but I can assure you that visual signalling is far too valuable a subsidiary means of communication to be allowed to die out, and you will realise that in Mountain Warfare of the nature we get in India, visual signalling becomes of primary importance on account of the difficulties involved in the movement of orderlies, and in the use of the Telegraph and Telephone.

## ***Communication in the Field.***

In the Russian-Japanese War, the Japanese were practically and entirely dependent on the Telegraph and Telephone. There was no alternative in the event of a breakdown. Visual signalling was admitted to be a weak point.

### ***Messenger Service.***

Except over short distances, or when the message is of great length, communication by this means is slower than by wire. It is however the most accurate of all means provided the man reaches his destination, but he may be shot, he may lose his way, his horse may go lame or his machine go out of action.

Military history abounds with instances of disaster caused by a messenger failing to reach his destination, nor is it known until he returns whether the message has got through or not. The men for this service require a long, careful and systematic training and to be successful, the Despatch Rider Service requires the most careful consideration.

Despatch Riders are liable, during battles and other times of special activity, to be put under a very heavy strain. In the second battle of Ypres it was often necessary to send 4 Despatch Riders with the same message, the system being to send one man with the message with a comrade following 100 yards behind and two others at short intervals, either by the same road, if no other was available, or by alternative roads when such was possible. On such occasions, the nursing of Despatch Riders and their machines becomes of primary importance, and the sympathy of the Staff is essential to prevent a breakdown.

### ***Pigeon Service.***

During the present War considerable use has been made of Carrier Pigeons to supplement electrical communications, when these were likely to prove insufficient or break down.

Experience has proved that Pigeons very quickly become used to shell-fire, which does not appear to disturb them at all in their lofts, and they will bring back messages through a heavy, Barrage of Artillery fire and through Gas clouds, when no other method of communication is available.

Under present conditions on the Western Front the birds are normally employed to bring back information from the front line

trenches or from Infantry advancing in the course of an action.

The arrangements for the supply of the Pigeons to the points from which they will be required to fly requires careful organization depending on local conditions. The birds are taken up to these points in pairs in small trench baskets. A fortnight is required before they can be flown with messages to the site of the loft.

A special Pigeon Service Message Book has been provided which provides for the making of three copies of every message.

The messages are put in aluminum carriers. These have clips which should be fastened round the lower part of the bird's leg inside, but below the knee. Urgent or important messages should always be sent in duplicate, if sufficient birds are available.

#### *Wireless.*

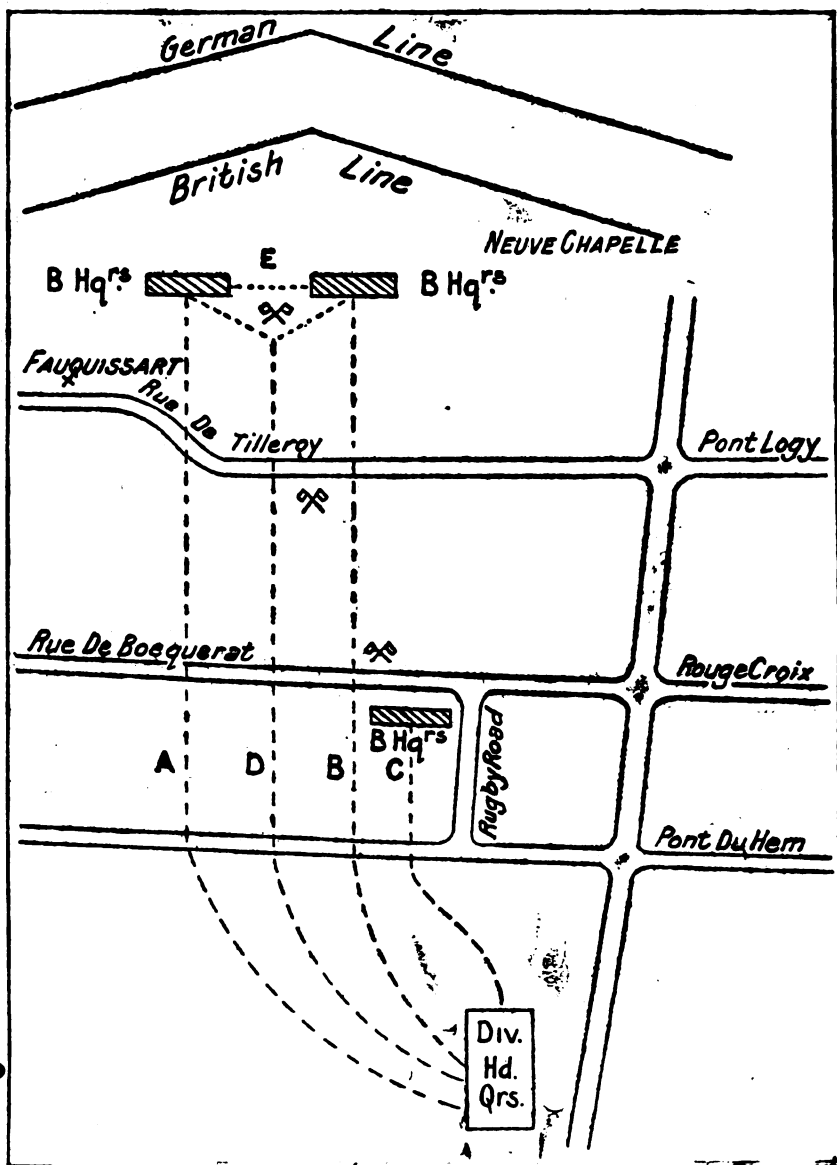
In France arrangements for the use of Wireless are made by Corps Headquarters and notified to all concerned.

Two Trench sets are usually allotted to each Division. These sets communicate with the Corps set which controls all Wireless traffic in its zone. The trench set can be erected in 10 minutes and has a range up to 4,000 yards. Owing to its visibility it is usually inadvisable to send a trench set further forward than advanced Infantry Brigade Headquarters.

The great disadvantage in wireless is that messages sent by it can be read by the enemy. They have therefore to be sent in Code or cypher, for which the Staff have difficulty in finding time especially during an action.

Now I come to some of the difficulties the Signal Service, or rather all Signallers, have to contend with in trench warfare:—

With the advent of trench warfare the need for more complete and elaborate communication at once became apparent. It became necessary to ensure communication by wire right up to the Front Line to connect up the supports and reserves, so that they could be got in motion with the least possible delay, and also to provide lateral communication by wire with all neighbouring units.

**Communication in the Field.**

It was further necessary, owing to the short interval between the launching of an attack and the time when it reached the opposing trenches, to provide for instantaneous communication between the Infantry in the Front Line and the Artillery, so that effective Artillery Fire could be brought to bear at once.

The intensity of the shell-fire which develops during an attack makes the maintenance of communications an extremely difficult problem and alternative routes, duplication of circuits, burying wires, supplementing of wires by visual, wireless and carrier pigeons and various other means are all used in the effort to overcome it.

I am afraid it is not always fully realised what difficulties, you might almost call them insuperable difficulties, have to be overcome to keep communication going in a heavily shelled area.

I will give you a typical example of communications from my own experience.

On the 25th September 1918, in the battle of LOOS, while the main British attack was going on south of the LA BASSEE Canal, the Indian Corps was engaged in the subsidiary attack north of this canal in the vicinity of FAUQUISSART and NEUVE CHAPELLE.

The rough diagram shows our system of lines from Meerut Division Headquarters to the Brigades.

The Headquarters of the two attacking Brigades were about 400 yards from each other, and about the same distance from the front line.

The supporting Brigade Headquarters was about 1,500 yards from the front line and Divisional Headquarters 3,000 yards.

Owing to shell-fire all lines forward of Divisional Headquarters had to be buried. We accordingly buried one line to each Brigade, A. B. and C. We also buried a fourth line D and took it into both of the attacking Brigade Headquarters, so giving them each two lines. These two Headquarters were also connected laterally by line E. There was no time or sufficient cable to bury a second line to the supporting Brigade, and in any case it



### ***Communication in the Field.***

was only two or three minutes from Divisional Headquarters by Despatch Rider.

In addition to these cable communications, a visual line of 3 Stations was also arranged. These stations could not be at a greater distance than about 800 yards owing to the flat nature of the country; also we were using the electric signalling lamp, whose range by day is, at the outside, a thousand yards. The men in these visual stations were in good dug-outs and worked under cover, and under-ground, as the reading was done by periscope, and the lamp above manipulated from below by a lead or wire.

Take the case of the left Brigade, if A line is cut you still have B; if these both are cut you could still get through to this Brigade by line C and the lateral line E. If you were unlucky enough to have all three lines cut, there was still visual to fall back on.

You will note the duplication of circuits, alternative routes and alternative methods.

On the Western Front practically all main lines in our own trenches are now buried to a depth of not less than 6 feet, and generally 9 feet if time and labour permits, and these are in special trenches quite separate to communication or other trenches.

In an advance into hostile trenches time does not admit of burying lines, and as few lines as possible are laid and all efforts concentrated on keeping these few going.

Along these lines relay posts consisting of two runners and two linemen with repairing material are established every 200 to 300 yards, and arrangements are made by the Division to bury these lines as soon as circumstances admit.

Another great difficulty we had to contend with in trench warfare was control of this complicated system of lines in the forward area. The most stringent orders were issued regarding economy in cable and the recovery of lines no longer required. These usually fell on deaf ears.

The same Front was held for months, but units continually changed, and, as each new unit went into the line, more lines were

laid and the old ones left down and the front became entangled with lines, 50% of which were not in use and which impeded the movement of troops and made it quite impossible to trace and repair lines; so inefficiency resulted.

Eventually it was decided to demarcate areas under Signal Service Officers. Within his area this officer was a supervising officer of all lines. His job was to clear the tangle and immediately to run in any unit who laid new lines without permission, or who did not look after their lines properly or left them derelict. This system has proved most satisfactory.

In Trench warfare constant changes in the location of Headquarters was another bugbear we had to compete with.

When I speak of Headquarters I refer to Divisional, Brigade, Battalion and even Company Headquarters. These constant changes are greatly to be deprecated and should be avoided as far as possible for the following reasons:—

Firstly, lines can be gradually strengthened and improved.

Secondly, linemen become thoroughly acquainted with their course and probable place of breakdown.

It is fully realised that changes of location of Headquarters may be essential for tactical considerations, but at times such considerations were not always the principal motive for the change. I cannot impress on you too strongly that even the slightest change or alteration in the position of a Headquarters probably results in the upheaval and temporary disorganization in the whole system of communications, and the work entailed and the cost involved is enormous. This latter will especially be realised when I tell you that D. 5. Cable, the cable we generally use, costs £25 per mile, and buried lines are as a rule unrecoverable.

If, however, you are compelled to move your Headquarters, under no circumstances allow your Signals Officer to close his existing office, until his new one is in full working order. Neglect to adhere to this principle might result in serious delay to important orders.

I should here like to make a brief reference to the necessity, in Trench warfare, of safeguarding messages sent from the trenches by telephone or buzzer being read by the enemy.

It is known that by special apparatus it is possible for the enemy to overhear messages sent either by speech or buzzer over our circuits, and the only safeguard is to forbid any earth circuits in the zone 3,000 yards from the enemy, and to insist on all circuits being metallic. Even then you are not safe if the insulation of these metallic circuits is not perfect, and in certain Corps areas in France no telephones or buzzers whatever were allowed in the first thousand yards. It was proved beyond doubt that the enemy has obtained full information of impending attacks by this system of overhearing.

There are many other difficulties we had to contend with in Trench warfare, I could tell you about, but time forbids, and I will now pass to *communications in mobile warfare*, where the difficulties are even more accentuated.

Some experts will tell you that the only reliable means of communication in mobile warfare is by Despatch Rider. I would not go so far as to say that, but would say that you will have to rely a good deal more on Despatch Rider and Visual, and a good deal less on Cable communications.

You cannot expect the same elaborate system of communication you get in stationary warfare. If you do, I am afraid you will never get it.

In a civilised country it may be possible to make considerable use of the permanent lines of the country during an advance; if so this should be of great assistance. But even if these do not exist, with a little warning, forethought, and bandobust, it should be quite possible, say in the case of a force marching in pursuit of a retreating enemy, covered by an advance guard, for the leading Division to construct one main telephone circuit along its line of advance, and to extend this one circuit to Brigades when the Division deploys for action, but that is about all that can be expected.

In this form of warfare smaller units such as the Infantry Brigade and the Battalion will seldom be able to use communication by wire and must chiefly rely on Visual, runners and mounted orderlies.

The Mobile equipment of cable with units must be kept complete at all times, and, when it becomes necessary to employ it in open warfare, it must be used as economically as possible and reserved for an emergency, as, owing to the probable state of the roads and railways in rear and congestion of traffic, it will only be possible to bring up supplies, ammunition, and a few of the most essential stores, and the re-placement of large quantities of cable will be out of the question.

And now I come to the last heading in my lecture, the relation between the Signal Officer and his Staff on service.

To be a successful Signal Officer it is essential that he should gain and maintain the complete confidence of his Staff. On the other hand to carry out his duties successfully he should receive the confidence of and general support from his Staff and he should be regarded as their Technical Adviser and not Executive officer only.

Finally please remember the most important fact that it is essential for the Signals Officer of the Signal Service, Regiment or Battery, to have the earliest intimation of projected moves and operations in order that he may be able to get the necessary communications under way in time. If this close co-operation and confidence do not exist then there is bound to be a breakdown in communication and consequently delay in transmission of orders and all the evils that follow therefrom.

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## **BIOGRAPHICAL SKETCHES.**

BY BRIGADIER GENERAL R. G. BURTON.

### **VI. HERBERT EDWARDES.**

Not many men attain the standard of fame defined by Napoleon when he said:—" I hold the immortality of the soul to be the remembrance we leave behind us in the minds of men. This thought is an inspiring one. It were better never to have lived at all than to leave no trace of one's existence behind." Judged by this standard, the immortals are few indeed, and the very names of men who some decades ago were eminent in the service of their country have been overtaken by unmerited oblivion. Perhaps the name of Herbert Edwardes is not entirely forgotten in the regions that were the scene of his activity from sixty to seventy years ago. An attempt was made to immortalise him in the designation of a cantonment, but Edwardesabad has again become Bannu. There is a monument to his memory in the Valhalla of the illustrious dead, on which is the record of him " who, in early life, as a subaltern of the East India Company's Army, by his fertility of resource and his promptitude in action, struck the first victorious blow at the insurrection in the Punjab in 1848; who, in later years, by his courage, sagacity, and mastery over men, ever animated by Christian principle, won an enduring place in the affections of the people, to whose welfare he long devoted himself; and in 1857, at a time of unexampled danger, greatly contributed to the security of the Frontier and the salvation of the British Empire in India."

Herbert Edwardes was already over 21 years of age when he joined the 1st Bengal Fusiliers, now the Royal Munster Fusiliers, at Karnal in 1842. He had not intended to be a soldier and consequently came to India some years later than was customary in those times. This afforded him more educational advantages than was the lot of the young officers of his day, and he brought with him a cultivated mind steeped in the best English literature and possessing poetical and artistic instincts. The value of such tastes, especially in the officer who is to spend his life in India,

is generally underrated. In our national cult of games and sport it is too frequently forgotten that exercise of the brain is as necessary as that of the body; without use, the one is as liable to atrophy as the other, and far more likely to deteriorate amid surroundings where the intellectual horizon is of necessity limited in the mental stagnation of an Indian cantonment. Edwardes first attracted the notice of his patron, Henry Lawrence, by a series of letters entitled "Brahminee Bull's Letters in India to his cousin John Bull in England." These were published in the Delhi Gazette. In these days the publication by an officer of letters "dealing freely and largely with the military questions of the day, then under anxious discussion, relating to our unfortunate disasters in Cabul, all its mistakes, its follies, its sins, as well as with all questions concerning England's relations with India, and kindred subjects", would probably bring disaster to the writer. *Autres temps autres mœurs*; to Edwardes they brought the opportunity of a career. In 1845 he was made aide-de-camp to Sir Hugh Gough, and went through the First Sikh War; he was severely wounded at the battle of Mudki. On the conclusion of the war he wrote a lively account of the campaign in the Calcutta Review, containing a defence of the policy of the Governor-General, which had been attacked in some quarters.

After the war Edwardes was made one of the Assistants to Henry Lawrence, who appointed him his private secretary. Lawrence was British Resident at Lahore, the Council of Regency, consisting of eight sirdars, acting under his direction in behalf of the young Sikh Maharaja, Dhalip Singh. The terms of his appointment gave Lawrence unlimited authority in all matters of internal administration and external relation during the Maharaja's minority, which would terminate on the 4th September 1854.

In 1846 Edwardes was sent on an important mission to Kashmir, after the successful conclusion of which he was detached on special duty to Bannu. Among other duties of the civil officers of the Punjab was the collection of revenue. In their turbulent frontier districts, such as Bannu, a conquered

territory which had to pay annual revenue to the Lahore Durbar, the Sikhs in former times were obliged to send armies to enforce payment. Bannu, a valley west of the Indus, had long been in arrears, and even Ranjit Singh had been unable in a quarter of a century to reduce the people to obedience. So the Sikh Chancellor informed the Resident that two and a half year's revenue was due, and that "it was high time to send an army." It was this army that Edwardes was to accompany. Edwardes accordingly marched peaceably to Bannu, and although he collected little revenue it was the first time a Sikh army had moved through the district without hostilities. On his return to Lahore he proposed that the old Sikh system of collecting revenue should be abandoned, and the permanent occupation of the valley undertaken, the forts with which it was crowded being levelled to the ground, and a large fort built for the force of occupation. This scheme was sanctioned by the Governor-General. With some difficulty he got the inhabitants to consent to taxation, and even the Waziris signed the terms. By January 1847 the central fort, called Dhalipgarh, was well on the way to completion, and Edwardes issued the following proclamation on the 5th of that month:—"Where just laws are in force, every fakir's hut is a castle, because no one dare enter it to injure him. You are hereby ordered, therefore, to throw down to the ground the walls of every fort and enclosed village within the boundaries of Bannu; and I hold responsible the mulicks for the carrying out of this order within fifteen days." By the end of the month all the four or five hundred forts with which the valley was crowded had been levelled to the ground, with the exception of two which were retained by permission.

While Edwardes was at Bannu a tragedy took place at Multan which changed the course of history in the Punjab and eventually exercised incalculable influence on the fortunes of India. A Muhammadan, Mulraj, was, under the Sikhs, Governor of Multan. Under the changed regime consequent on the issue of the war and the establishment of a British Resident at Lahore, he became dissatisfied with his position and expressed his wish to resign.

As he persisted in this desire, two officers, Mr. Vans Agnew and Lieutenant Anderson, were sent to take over the administration of the district. These officers arrived at Multan on the 18th April 1848, and encamped in the Idgah, a spacious Muhammadan building near the north face of the fort, and about a mile from the Am-Khas, Mulraj's residence.

The two officers accompanied Mulraj over the fort, and received the keys. As they passed forth over the bridge, one of the soldiers of the ex-Governor standing there struck Vans Agnew in the side with a spear, unhorsing him. Mulraj rode off. The soldier then attacked the officer with a sword, inflicting two severe wounds, and Mulraj's personal sowars turned back and assailed Anderson, leaving him for dead on the ground. Sirdar Khan Singh, who accompanied the officers and was to be installed as Nazim in the place of the ex-Governor, remained faithful to them and got them back to the Idgah, although they were fired upon on the way by men posted in Mulraj's garden. The escort deserted, only Khan Singh, the Munshis of the office, and the personal servants remaining faithful. The fidelity of the personal attendants is worthy of note as a feature of similar outbreaks throughout Indian history. Next day at sundown a mob issued from the city and approached the Idgah, thirsting for blood. "It was an appalling sight, and Sirdar Khan Singh begged Mr. Agnew to be allowed to wave a sheet and sue for mercy. Weak in body from loss of blood, Agnew's heart failed him not. He replied 'the time for mercy is gone; let none be asked for. They can kill us two if they like, but we are not the last of the English. Thousands of Englishmen will come down here when we are gone, and annihilate Mulraj and his soldiers and his fort.....'". The mob rushed in, pushed aside the others and hacked the wounded officers to death.

On the evening of the 22nd April Edwardes was sitting in a tent in his camp at Dera Fateh Khan on the Indus, taking evidence in a trial, when a messenger hurried in and presented a letter bag, addressed to General Cortlandt in Bannu. Its



crimson hue proclaimed the urgency of its contents. General Cortlandt was an old officer in the Sikh service, who had served under Ranjit Singh, and was commanding a force at Bannu. He was under the orders of Edwardes as the chief civil authority representing the Government at Lahore. Edwardes, seeing the urgency of the missive, opened it. It was a copy of a letter from Vaus Agnew to the Resident at Lahore, briefly detailing the events that had occurred at Multan, written at 2 o'clock on the 19th April. At the foot of the copy was an urgent appeal for help in Vaus Agnew's writing, telling Cortlandt to send troops to his assistance. Edwardes relates that he went on with the trial, "but from that moment I heard no more. My eyes, indeed, were fixed mechanically on the speakers, but my thoughts were at Multan, with my wounded countrymen, revolving how I ought to act to assist them."

Edwardes had at his disposal only an infantry regiment, two horse artillery guns, twenty camel-guns, and between three and four hundred horse. But he resolved to drive Mulraj into the fort of Multan and rescue the whole surrounding country from the grasp of the rebel. It was now that his influence with the tribes served him in good stead. He quickly raised levies—Multani Pathans under Foujdar Khan, and Tiwanas under Fateh Khan. Edwardes crossed the Indus on the 24th April, and entered Leia, where he intended to halt and collect forces, having heard of the massacre of the officers at Multan. On the 29th he heard that Mulraj had sent a force of 4000 men and eight guns across the Chenab to attack him. He had 3000 Pathan and Baluch levies—but Cortlandt had not yet joined him and could not be expected for another ten days. He accordingly resolved to retreat, and marched to the bank of the Indus at Murawala, opposite Dera Fateh Khan on the 30th April, and collected boats there. On the 2nd May, hearing that the enemy were approaching Leia, he passed his troops across the river.

He was joined by Cortlandt with two battalions, six guns and two hundred horse on the 5th May, and on the 12th sent that officer and his force down the river to Dera Ghazi

Khau. In the meantime he asked the Resident to have a British force sent to recapture Multan, but the Government refused to undertake operations at that hot season of the year, and Edwardes consequently had to rely on his own resources. The troops of the Nawab of Bahawalpur were, however, directed to assist him, and an English officer, Lieutenant Lake, was sent from Lahore to take charge of the Bahawalpur troops, a fine force of 12000 Pathans. These crossed the Sutlej on the 30th and 31st May, and a portion advanced towards Jalalpur Peronwala, eighty miles from Multan. Edwardes meanwhile had been settling the country on the right bank of the Indus, where he captured several forts that adhered to the cause of the enemy, and having now, together with Cortlandt, some 6000 men and ten guns in the field, he had crossed the Indus with his fleet of boats and encamped opposite Dera Ghazi Khan, forcing Mulraj, who had been encamped at Koreshi, to retreat across the Chenab to Shujabad, where he had ordered the concentration of his forces.

It was not until the afternoon of the 14th June that Edwardes' and Cortlandt's forces completed the passage of the Indus, the boats having to make several voyages across the eighteen miles of water. On the morning of the 15th Edwardes marched to Khangarh on the right bank of the Chenab, where Cortlandt joined him next day. The Bahawalpur troops were now concentrated at Guwain, 24 miles forward from Shujabad on the way to Multan. On the evening of the 17th Edwardes received information that the enemy had advanced from Shujabad, and appeared to be making for the Kineri ferry with the intention of crossing the Chenab. The Bahawalpur troops, accordingly, moved to Kineri to protect the passage, being joined there by 3000 Pathans whom Edwardes sent across, during the night. Edwardes himself crossed the river at sunrise on the 18th June, taking with him a few horsemen, and leaving Cortlandt to follow as rapidly as possible with the remainder of the force and guns.

As he neared the left bank, the English officer heard a burst of artillery a mile or two from the shore. "A second cannonade

***Biographical Sketches.***

replied, was answered, and replied again, and two tall opposite columns of white smoke rose out of the jungle, higher and higher at every discharge, as if each strove to get above its adversary, then broke and pursued each other in thick clouds over the fair and peaceful sky... As I stepped on shore, and buckled the strap of my cap under my chin, I remember thinking that no Englishman could be beaten on the 18th of June." Edwardes rode on and found the Bahawalpur troops, known as the Daoudputras, drawn up in line on a bush-covered plain with his own Pathan levies on the left. He rode down the line and urged the Bahawalpur officers not to attack the enemy until reinforcements and guns came from General Cortlandt's camp. They promised not to advance until he gave the word. The enemy had six guns in action; Edwardes had none, and he could only hope to hold out until the arrival of Cortlandt's artillery and regular infantry, which could not be expected before three o' clock. With great difficulty he restrained his troops, who could not understand the necessity of standing inactive under fire of the enemy. The fire of both sides scarcely slackened before three o'clock, by which time the hostile array of horse and foot had advanced so close as to be able to reconnoitre the position. At half past three they were threatening the weak flank on the left, and had advanced to within a few hundred yards, when the long looked-for guns arrived, together with two of Cortlandt's regiments. The moment was critical. Edwardes had no cavalry and had just been obliged to order a charge by a body of horse composed of the chiefs and leaders who accompanied him, headed by Foujdar Khan, who acted as his adjutant general. "Spreading their hands to heaven, the noble band solemnly repeated the creed of their religion as though it were their last act on earth; then passed their hands over their beards with the haughtiness of martyrs, and, drawing their swords, dashed out of the jungle into the ranks of the enemy's horse, who, taken wholly by surprise, turned round and fled, pursued by Foujdar and his companions to within a few hundred yards of the rebel line, which halted to receive its panic stricken friends."

Foujdar Khan received two wounds; many fell, and of those who returned few were unwounded. But the charge saved the day. At that moment the bugles of the approaching artillery were heard; the front opened to let them pass. The officers who were crowding round Edwardes returned to their posts; standards were plucked up and shaken in the wind, ranks closed, swords grasped, and matches blown, and the long line waved backwards and forwards with agitation. Edwardes led the guns with Cortlandt's regiments behind them through the trees on to the cultivated plain beyond, and for the first time the hostile line appeared in sight. After an artillery duel which came at last to an exchange of grape at close quarters, the whole of Edwardes' line advanced to the attack, and the enemy were driven from the field on which they left 500 dead. They did not halt until they reached Multan. On the side of the victors there were under 200 casualties. The enemy's camp, ammunition, and six guns were captured.

Edwardes was no Wellington, nor had he a Napoleon opposed to him. But the victory achieved by this English subaltern with 15,000 troops, mainly raw levies, over a well-armed and determined enemy, furnishes a remarkable illustration of the influence that may be wielded by a single man of the ruling race over thousands of orientals, and places the deeds that he accomplished among the most remarkable records of history. Edwardes marched to Shujabad on the 22nd June, having with him the Daoudputras, a force of 18000 men and 30 guns. He wished the siege of Multan to be undertaken at once, and for this purpose asked for some heavy guns and sappers and miners and the services of Major Napier, afterwards Lord Napier of Magdala. His opinion was supported by the Resident, but Government would not agree to the employment of European troops and gunners at the hottest season of the year, and it was not until some months later that a force under General Whish was sent for the purpose. The difficulties were then enhanced by the time given to Mulraj to strengthen the defences of Multan, and by the growing disaffection which led to a Sikh army joining the rebels at Multan.

In the meantime Edwardes advanced with the intention of driving Mulraj into Multan and besieging him there. On the 26th June he marched to Sikandarabad. Mulraj ordered his troops out to Surajkhund, six miles from Multan, where a canal forty feet wide crossed the road. Here there was a bridge which was seized by the rebels. On the 1st July Edwardes reached Tibi at 11 a.m., and heard that Mulraj had recalled his troops from the Surajkhund bridge, and marching along the other side of the canal, concealed by the banks, had crossed the water by a masonry bridge in front of the city of Multan, emerged onto the the Sadusain plain three miles in front. Edwardes formed line and advanced to meet the rebels with the Daoudputras under Lieutenant Lake on the right; General Cortlandt's command in the centre; and his own command on the left. The enemy fought bravely, but battles are won by brains, not bravery; they were outgunned and outgeneralled, and after a sharp action were driven into the city with heavy loss.

Edwardes now invested Multan as far as he was able to do with the forces at his disposal. In the middle of August a regular siege was undertaken by an army under General Whish, but the city was not captured until the 3rd January 1849, when the murder of the two British officers was avenged, and their remains were carried at the head of the troops through the breach in the wall by which the city was assaulted, and buried on the summit of Mulraj's citadel. The delay in sending an army to deal with Mulraj enabled him to collect more men, and led to the defection of Sikh troops employed in the siege, and was a contributory cause in bringing about the Second Sikh War. In the end perhaps this was not without advantage. For it brought about the annexation of the Punjab, and the inclusion in our army of the warlike race which has since done such splendid service for the Empire. For his services Edwardes was made a Brevet-Major and a C.B. After serving at Jullunder and in Hazara, Edwardes was in 1853 appointed Commissioner of Peshawar after the assassination of Colonel Mackeson.

His work at Peshawar not only concerned the wild tribes of the border but he had an opportunity of exercising diplomacy in negotiating a treaty with the Amir of Afghanistan, which was made at his suggestion. The treaty was proposed in the first instance by Edwardes and carried through in the face of the opposition of Sir John Lawrence who "doubted whether a treaty would be good policy with the Dost, who would only be bound by it as he liked." Writing to Edwardes again on the subject, Lawrence said—"I daresay you are right; still I cannot divest myself of the idea that it is a mistake, and will end by mixing us up in Afghan politics and affairs more than is desirable. The strength which a treaty can give us seems to be a delusion. It will be like the reed on which, if a man lean, it will break and pierce his hand." Fortunately the Governor-General, Lord Dalhousie, agreed with Edwardes, and in expressing his views wrote:—"I do not agree with him (Lawrence). I think his views founded on a fallacy. It proceeds on the assumption that the Afghans are fools, whereas I think they are in general quite as clever fellows as we are." History proved that Edwardes was right. The treaty was signed at Peshawar by the Amir's son. It was confirmed by a further agreement made at Edwardes' suggestion in January 1857, and its value was proved during the troublous days of the mutiny. It is a singular fact that Lawrence, who had opposed the measure and whose only part in it was to sign it as Chief Commissioner of the Punjab on behalf of the British Government, was rewarded with a K. C. B. for his services in the negotiations. Nor did he ever give any credit to his subordinate. It was a recognised defect in his character that he gave neither praise nor reward to those who served under him.

When the mutiny broke out in May 1857, Edwardes, in association with John Nicholson, was largely instrumental in the measures taken for the disarmament of the troops at Peshawar, in the maintenance of peace on the frontier, and in the raising of levies from among the local tribes. History repeats itself and in the friendship of the present Amir may be seen the results of a policy like that which secured the treaty with Dost Muham-

mad, of which Edwardes wrote:—"To the honour of Dost Muhammad Khan, let it be recorded that throughout the Sepoy War, under the greatest temptation of events and the constant taunts of the fanatical priests of Kabul, he remained true to the treaty, and abstained from raising the green flag of Islam, and marching down on the Punjab. Had he done so no man who was in India in those dreadful days of September before John Nicholson stormed Delhi will for a moment doubt that the English would have been driven to their Ships."

This memoir would be incomplete without some reference to the religious side of Edwardes' character. His zeal for his religion made him not merely a Christian but to some extent an evangelist, which led to his establishing the mission at Peshawar. It is probable that his religious observance greatly increased his influence over the peoples with whom he had to deal. The oriental is religious and admires those who have a religion and lead religious lives, a fact which perhaps accounts for the great influence of those servants of Government who exercised a paternal authority in this country in earlier and more religious times than those in which we live. This is not the least valuable lesson of the life of Herbert Edwardes, which the present generation may well lay to heart.

Edwardes left India in 1865, and died three years later. It was said of him that "love for all that is good and true, reverence for all that is great and noble, a spirit of humility, had their roots in the depths of his soul. Such a man makes us prouder of our race, and the memory of such men is a precious inheritance to all Englishmen." He was essentially a strong man, but exemplified in his life that strength need not be accompanied by hardness of heart and lack of human feeling; and that kindness does not denote weakness. It has been said that selfish fame is evanescent, but in his career is no note of selfishness or self-seeking. In him the soul asks honour and not fame, to be upright, not to be successful."

In the history of our Empire we look back through the vista of time and see such men, the instruments of Fate, doing

their duty to the best of their ability, seeing little beyond the present, yet working all unconsciously for the future, living and dying in the service of their country. They are the shuttles in the loom of Fate. Fate weaves the web of Empire with ceaseless activity and inexorable certainty. "Slow grows the splendid pattern that it plans, its wistful hands between," tending to some end which, as the years pass and the pattern is more and more revealed, can be dimly discerned behind the veil of the future.

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## VIII. THOMAS MUNRO.

The chief city of the Madras Presidency contains many monuments and landmarks of historic-interest. If the Presidency is benighted, it is in the gloom that follows on a glorious day. Here in 1640 the English first settlement was fortified, and to this day the bastions of Fort St. George, surrounded by a moat and glacis, stand four square to the North-East gale and all the winds that blow. Within these historic walls Stringer Lawrence, "the Father of the Indian Army," raised the forces with which he defeated the French at Golden Rock. From here Eyre Coote marched to the victory at Wandewash, which quenched for ever the prospects of French dominion in India; and many an expedition went forth against Hyder Ali and Tipu Sultan, the Tiger of Mysore. From Madras Robert Clive, disguised as a native, escaped when the place was captured by the French. From here he marched to find fame and immortality at Arcot and at Covel-pauk, and sailed for the crowning victory of Plassey. And here today his stern and forbidding features look down from the walls of the Hall of Council. Within these historic precincts are relics of Wellington, who in 1806 embarked to seek a career still more glorious than that which had attended his footsteps in the East. And in the old Church lies the dust of many a brave soldier, and more than one bold mariner, his earthly voyages over, has found here a last resting place and a permanent memorial. Their names awake an echo in the corridors of time and illuminate a glorious page in the records of history.

On these walls Hyder Ali looked from afar, and little more than a hundred years ago the Pindari hordes raided almost up to the very walls of Madras.

From the Wallajah Gate of the Fort, which takes its name from a Nawab of the Carnatic, after emerging from beneath its ramparts, a wide road leads to the finest quarter of the city passing over the two bridges across the river that forms the Island, and broadening out like the Appian Way of Rome. In the centre of the way and of the Island, half a league from the Fort, the figure of a horseman, cast in bronze in heroic mould, looks

out across the stretches of green sward and gazes on the sea. The figure is worthy of the sculptor and of his subject. The features are of noble aspect, and the form of heroic proportions. But it is not more permanent than the memorial, more lasting than brass, which the character and achievements of Thomas Munro have raised in the country which was for so many years the scene of his activities.

Thomas Munro was nearly nineteen years of age when he landed at Madras as a Cadet in the East India Company's service in January 1780, having worked his way out as an ordinary seaman to save the cost of a passage. His father had been in affluent circumstances but had suffered financial losses that had reduced him to poverty, but not until his son had acquired the rudiments of a good education at Glasgow Grammar School and University, where he was distinguished in mathematics and chemistry and specialised also in the study of history and literature. He was in addition an accomplished linguist, and taught himself French and Spanish, and later on acquired a knowledge of several native languages. That he held sound views on education and the value of historical study is evident from a passage in one of his letters in which he says:—"The cold lifeless reasoning which is prematurely forced upon an unfortunate student is as different from the vigorous conception which is caught from mingling with general society as an animated body from its shadow. It is distressing that we should persevere in the absurd practice of stifling the young ideas of boys of fourteen or fifteen with logic. A few pages of history give more insight into the human mind, and in a more agreeable manner, than all the metaphysical volumes that were ever published."

He made a thorough study of Persian and Urdu; in his letters and minutes are frequent references to the necessity for a knowledge of the vernacular not only for military officers, but for civilians in the position of Collectors, "who are otherwise kept under the dominion of their servants and ignorant of every thing passing around them."

Munro, on arrival at Madras, was placed on duty at Fort St. George until July 1780, when he marched to Poonamullee with the grenadier company of the 21st Battalion of sepoys, but in August he joined the Cadet Company, and marched with Sir Hector Munro's army in the field on the 26th of that month. The times were momentous. Hyder Ali, the great statesman and soldier of Mysore who, beginning as a military adventurer, had usurped the power of that State, had entered the Carnatic and laid siege to Arcot. There were divided counsels in the Madras Government; Sir Thomas Rumbold, the Governor, and Sir Hector Munro, the Commander-in-Chief, were dilatory and lacking in energy. A force under Colonel Baillie was unwisely detached to the north; Hyder interposed between this force and the main army, and on the 10th September attacked and destroyed Baillie's detachment, Munro having marched too late to save him. The latter retreated to Chingleput and from thence to St. Thomas's Mount. Thomas Munro wrote in his journal a very clear and interesting account of these operations and of the siege of Arcot, which surrendered to Hyder.

These unfortunate events necessitated the despatch of an army from Bengal, which arrived in the Carnatic early in 1781, when the veteran Sir Eyre Coote assumed command. On the 24th January Munro was present at the relief of Wandewash to which Hyder had laid siege since the fall of Arcot. Wandewash was defended with great energy and judgment by Lieutenant Flint, an officer who gained considerable fame in this war. After these events he accompanied his regiment with Sir Eyre Coote's force on its march to Pondicherry and Cuddalore, and in the subsequent operations which led to the defeat of Hyder Ali at Porto Novo. During this period he was present at the abortive attack on the fort of Chilambaram, thirty miles South-West of Cuddalore, of which he gives a graphic account in his journal. It is noteworthy that his letters and journals, while giving excellent descriptions of military operations and critical remarks on their conduct, are quite impersonal and contain no mention of self and no reference to the writer's adventures. In the attack on Chilambaram the pagoda was stormed and the outer of its two gates blown

in by shots from a 12-pounder, by which means the second gate was also breached. The sepoy's rushed in and crowded the space between the two gates, when the clothes of many caught fire from some burning straw and, exposed as they were to the fire of the enemy, they were driven back with the loss of their gun and six officers and 150 men killed and wounded.

As Chilambaram was too strong to be taken by assault, some battering guns were sent for to Cuddalore, and the army moved to Porto Novo to cover their landing. Hyder Ali, hearing of this repulse moved forward to attack the English, marched seventy miles in two days, and encamped four miles from Porto Novo where, on the 28th June the rising sun discovered to their view the plain for several miles covered with the tents of the Mysore army. On the 1st July Sir Eyre Coote marched out to give battle. He had only 7500 men to oppose an army of 100,000, but his superior artillery and the discipline of his troops gained the day, and Hyder Ali's army was soon put to flight.

Hyder Ali died in December 1782 and was succeeded by his son Tipu who at once took the field and, joined by a body of French, advanced to lay siege to Wandewash. But the English destroyed the fortifications of that place, and Tipu withdrew to Mysore on hearing of the advance of General Mathews on the Malabar coast. In these events Thomas Munro took part as a regimental officer. He was also present at the battle of Cuddalore in July 1783, when the French under Bussy were defeated by General Stuart. Munro was a competent critic of military operations and wrote regarding this action:—"There seemed no connection in our movements; every one was at a loss what to do, and nothing saved our army from a total defeat but the French being, like ourselves, without a general." Peace with the French was established by the Treaty of Versailles, and the war with Tipu was brought to an end in March 1784.

In the ensuing years of peace Munro employed his leisure with the study of the Persian and Hindustani languages. In 1788 he was appointed an Assistant in the Intelligence Department.

1790 His letters of the time show that he was a close student of European war and politics and did not allow his brain to run to seed after the manner of so many army officers of his and other times. In October 1790 he joined the 21st Battalion Madras Native Infantry for service in the war that broke out that year, owing to Tipu's invasion of Travancore. He served throughout the war until peace was concluded by Lord Cornwallis at Seringapatam. He then accompanied the detachment which marched with Tipu's sons, when they were sent as hostages to Madras under the terms of peace.

Hitherto Munro's duties had been entirely military, and he had gained considerable experience as a soldier. But he was now to be employed for nearly 25 years in a civil capacity until his re-appearance in the field in command of an army in the Mahratta war of 1817-19. Although he had seen so much active service during the wars with Mysore, he had no opportunity of gaining special distinction, but his merits had no doubt been observed, for on conclusion of the war he was appointed to the Civil Department as an assistant to Captain Read, Superintendent of Revenue of Baramahal, a District ceded by Tipu under the terms of peace. His letters during this period are marked by sound judgment of public affairs; he deprecated an arrangement with Tipu, considering that it was necessary to destroy that predatory and aggressive power, and he disapproved of the application to India of the principle of the balance of power on which the continuance of Tipu's existence was based as an offset to the Mahrattas and the Nizam. In fact he was not enamoured of the habit of thought to which English politicians are so prone, of considering policies and forms of Government suitable to Europe necessarily desirable in the East. He foresaw that Tipu, being left strong, would renew hostilities on the first favourable opportunity, and that the eventual destruction of that potentate would be necessary. History proved the correctness of his estimate. He was no advocate of the policy of the weak and irresolute of "wait and see", and "do not humiliate the enemy". These are no modern growth. Munro wrote at this time. "Everything is now done by moderation

and conciliation; at this rate we shall all be Quakers in twenty years more. I am still of the old doctrine, that the best method of making all Princes keep the peace, not even excepting Tipu, is to make it dangerous for them to disturb your quiet. This can be done by a good army. We have one; but as we have not money to pay it, we ought to have taken advantage of our successes for this purpose, and after reducing Seringapatam, have retained it and all the countries south and west of the Cavery.

If peace is so desirable an object it would have been wiser to have retained the power of preserving it in our hands, than to have left it to the caprice of Tipu who, though he has lost half his revenue, has by no means lost half his power''.

It has been said that Munro was given a civil appointment in Baramahal. This, an unusual measure in those days, gave considerable umbrage to civilians who regarded such appointments as their right. The reason for this departure from custom was that the work of civilians had recently not been satisfactory, and it was not possible to find among them men possessing the qualifications essential for undertaking the settlement of a new district. The Civil servants of the East India Company were not acquainted with the people and their language and customs. They were in the habit of trusting entirely to their native assistants. Public business was accordingly carried on through interpreters, and this form of Home Rule led naturally to the aggrandisement of the native intermediaries rather than to the interests of the people. The appointment of military officers to these duties created an unexampled sensation among the civilians of Madras who regarded such posts as their right, and aroused a jealousy and resentment against military officers in general and the officers appointed in particular, which operated with bitterness against Munro throughout the remainder of his public life.

Munro spent seven years as a Collector in the Baramahal, where his first work was to settle the amount and mode of collection of the revenue in such manner as to secure the permanent welfare of the people and the benefit of the State. In one

of his letters he says—"You seem to think that I have a great stock of hidden knowledge of revenue and other matters, which I am unwilling to part with. I have more than once endeavoured to convince you that we have no mysteries, that we have made no new discoveries, and that our only system is *plain hard labour*. Whatever success may have hitherto attended the management of these districts, it is to be ascribed to this talent alone and it must be unremittingly exerted, not so much to make collections as to prevent them, by detecting and punishing the authors of private assessments, which are made in almost every village in India. We have only to guard the ryots from oppression and they will create the revenue for us". He gives an attractive account of his principal district, Tripattur, "standing in the midst of a fertile valley, from ten to forty miles wide, and sixty or seventy long, surrounded by an amphitheatre of mountains of every shape, many of them twice as high as the Grampians. The country here among the hills has none of the cold and stunted appearance which such countries have at home. The largest trees, the richest soil, and the most luxuriant vegetation are usually found among naked masses of granite at the bottom of the hills."

Regarding the people of India, by which he meant the vast silent majority, the agricultural inhabitants, and not the vociferous educated elements in the large towns, who, indeed, did not exist in those days, he says:—"The people are but one people; for, whoever be their rulers, they are still all Hindus; it is indifferent to them whether they are under Europeans, Mussulmans, or their own Rajas. They take no interest in political revolutions; and they consider defeat and victory as no concern of their own, but merely as the good or bad fortune of their masters; and they only prefer one to another, in proportion as he respects religious prejudices or spares taxation."

Munro was of a studious disposition, and his leisure was largely occupied with reading and study, as is evident from many of his letters written during this period when he was in the Baramahal. But it must not be supposed that he was a mere bookworm. He wrote to his brother in 1795:—

"I would sooner play fives or billiards or make up a party to go up a hill or to swim, than read the first composition of human genius, or pass a classical night with the whole of the Royal Society in full College. I, however, still like reading and the company of those whom I suppose to be men of taste and knowledge, as much as ever; but without recreations of a lighter kind, I should soon lose all relish for both".

Munro had been seven years in Baramahal when, in 1799, the last war took place with Tipu Sultan. As already he had seen, this war, and the destruction of 'Tipu's power, were inevitable. He took no very active part in the operations, being employed with a corps for supply and convoy work on the line of communications, and he did not join the main army before Seringapatam until the 10th May, some days after the fall of that place. He was then appointed Secretary to a Commission for the settlement of the conquered territory, and in this capacity came in to contact with Arthur Wellesley (Duke of Wellington) who was a member of the Commission, and with whom he subsequently maintained a very interesting correspondence throughout his career. Some of this correspondence may be read in the Wellington Despatches. At Seringapatam, of which Wellesley was appointed Military Governor, he and Munro had discussions regarding the extension of English dominion in India, which was opposed by Wellesley but favoured by Munro. It may, however, be doubted whether the latter would have supported the extensive annexation policy of Dalhousie; but as a previous writer has said:—"there can be no manner of doubt that the proposal to restore Mysore to native rule, after it had enjoyed for nearly fifty years the benefit of British administration, a proposal which, having been repeatedly negatived by the highest authorities, was eventually sanctioned in 1867, would have encountered from him an opposition not less strenuous than that which was offered to it by Lord Canning and his successor in the Governor-Generalship". So much may be gathered from his writings; but it may also be said that the proposal to give India Western forms of Government which are entirely unsuited



to the history, the traditions, and the genius of the people would have been more strongly disapproved by this able statesman; it is probable that, if an extension of native self-government were inevitable, he would have preferred to see it take the form of an expansion of the native States.

Among the territories acquired by the East India Company on the fall of Tipu Sultan was the District of Canara which stretches for a hundred and eighty miles of forest, mountain, and plain along the Western coast of India to the north of Malabar. Munro was appointed Collector and with two assistants was sent to settle the revenue of this country. The change was not at all to his taste, and his correspondence makes no secret of his displeasure. In the Baramahal, where he had spent so many years, he had come to know well the country and the people. He had established order out of chaos, and, as all was working smoothly, he had looked forward to comparative ease. Now he had to undertake the settlement of a wild and inhospitable region, far from all his friends, of which he knew neither the inhabitants nor their language. If he had been fond of sport and natural history he might have found solace in these pursuits among the vast jungles of his new district. But such things did not attract him, and there is no evidence in any of his letters that he ever possessed or fired a gun. Of his work in Canara he wrote:—

“I am now literally, what I never expected to be, so much engaged that I have not leisure to write private letters. From daybreak till eleven or twelve at night I am never alone except at meals, and these altogether do not take up an hour. I am pressed on the one hand by the settlements of the revenue, and on the other by the investigation of murders, robberies, and all the evils which have arisen from a long course of profligate and tyrannical government. Living in a tent, there is no escaping for a few hours from the crowd; there is no locking oneself up on the pretence of more important business, as a man might do in a house.” In another letter he writes:—“What an idle life I have led since I came to India! In all that long course of years which I look back to sometimes with joy, sometimes with grief, I

have scarcely read five plays, and only one novel. I have dissipated my precious time in reading a little history, and a great deal of newspapers, and politics, and Persian''.

By the end of the fifteen months he served in the district Major Munro had established order, having put down bands of freebooters, settled the assessment and collection of taxes, and established good government throughout the district.

In the year 1800 an opportunity occurred for the transfer of Munro from Canara to a more important charge. By treaty with the Nizam the English undertook to protect the territories of that Chief from the Mahrattas and any other external enemy who might threaten him. In return the Nizam was to maintain the force that was necessary for his protection, which was known as the Hyderabad Subsidiary Force, and was stationed at Secunderabad. The Nizam at the same time ceded certain districts, comprising Bellary and Cuddapah, for the maintenance of this force. In November 1800 Munro was appointed Collector of these Ceded Districts. Here his work was much what it had been in Canara, but he had an even more turbulent population to deal with. There were in the Ceded Districts thirty thousand armed peons, who preyed on the people and, being seldom paid, compensated themselves by plunder and rapine. The mud fort which is attached to every village to this day testifies to the insecurity of life and property under the barbarous governments of the past, and to the necessity for protection from the band of marauders who infested the country.

Munro remained in charge of the Ceded Districts until October 1807, when he proceeded to England on leave for the first time after twenty-six years' service. On the occasion of his departure the Madras Government wrote to the Court of Directors, and referred to "his exertions in the advancement of the public service under circumstances of extreme difficulty, and with a degree of success unequalled in the records of this or probably of any other Government. The general amelioration and improvement of the manners and habits of the Ceded Districts has kept pace with the increase of revenue; disunited hordes of

lawless plunderers and freebooters, they are now stated to be as far advanced in civilization, submission to the laws, and obedience to the magistrates, as any of the subjects under this Government. The revenues are collected with facility, everyone seems satisfied with his situation, and the regret of the people is universal on the departure of the Principal Collector."

During Colonel Munro's tenure of office in the Ceded Districts two events of importance occurred in neighbouring territory—the Mahratta War of 1803, and the Mutiny at Vellore. Regarding both these events illuminating letters are to be found in his correspondence. He kept up a close correspondence with General Arthur Wellesley, who commanded the army in the Deccan during the operations against the Mahrattas, and he was able to render considerable assistance during the campaign in forwarding supplies to the army. His letters to Wellesley are of great interest. In these he was very outspoken, especially when Wellesley asked him "as a good judge of a military operation", for his opinion on the battle of Assaye. Munro did not entirely approve of the conduct of this battle, preceded by a division of force which left the English General weak on the field, accompanied by very heavy losses. But Munro was always fearless and outspoken in his criticisms, and, as a previous writer has remarked, "the men of those days were stronger, bolder, more outspoken, not so mealy-mouthed as we are apt to be, not frightened at losing an appointment; or Munro would never have had the courage to write to Arthur Wellesley that he had sacrificed more of his men at Assaye than was at all necessary, and have his letter taken in good part".

He gave a very true estimate of the causes of the mutiny at Vellore, and before that he had pointed out to Lord William Bentinck, Governor of Madras, the danger of the great increase of the native armies without a corresponding augmentation of the English troops which, he considered, ought "to be in the proportion of one to four or at least one to five". The correctness of his views was verified fifty years later when the great mutiny of the Bengal Army took place. Munro's visit to

Europe extended to six years, during which he gave evidence before a Committee of the House of Commons on the internal administration of India. His evidence created a deep impression "by the comprehensiveness of his views, by the promptitude and intelligibility of his answers, and by the judgment and sound discretion which characterised every sentiment to which he gave utterance". On his return to India in 1814 he was made President of a Judicial Commission on which he did valuable work, and in June 1817 he was appointed Chief Commissioner of the Southern Mahratta country, certain districts of which had been ceded by the Peshwar for the maintenance of a subsidiary force stationed at Poona.

Although he had served so long in the Civil Department, Colonel Munro still retained the instincts of a soldier, and he was anxious for a military command. On the outbreak of the Pindari War in 1817 he had applied to be employed with troops in the field, and he had never ceased to take an interest in military events and in military history.

In June 1817 he took up the appointment of Commissioner of the Southern Mahratta country, with headquarters at Dharwar. It was always his fate, the penalty of his great qualities, to be chosen for the settlement of newly-annexed or ceded territory. But Munro was soon to be engaged in active military operations. Several armies were assembled in that year for the suppression of the Pindaris, those bands of marauders who had established their strongholds on the banks of the Narbada and Chambai rivers, from whence they raided far and wide, carrying devastation almost up to the walls of Madras. Hostilities against these robbers were followed by the successive defection of the great Mahratta princes. On the 5th November the Pêshwâ attacked the English cantonment at Kirkee and was repulsed after a hard-fought action. Some Mahrattas of the Southern territory took up arms, and a portion of the Peshwa's troops, after he had been driven from Poona, overran the ceded districts.

In December Munro was appointed to command the Reserve of the Army of the Deccan with the rank of Brigadier-General.

The district was studded with forts, and probably no country of similar extent in any part of the world possessed as many strongholds as the territory of the Peshwa. These had mostly been constructed as secure retreats in the time of Sivaji, whom Aurangzeb called "the Mountain Rat". Brigadier-General Munro had at his headquarters only one battalion, the rest of the troops of the Reserve having taken the field under Brigadier-General Pritzler. But he procured from Bellary a small battering train and a detachment of native infantry, while he occupied himself in raising a force of irregular infantry. On the 5th January 1818 he began active operations, and opened the campaign with the siege of Gadag, which surrendered at once; on the 8th the fort Damal followed suit; Hubli and other forts were taken and garrisoned by irregular infantry, and early in February General Munro marched against Badami, on the Malparba, a walled town at the foot of fortified hills. This place was stormed at daybreak on the 18th; it was one of the strongest hill forts in India, but the garrison were all killed or captured by ten o'clock, with a loss to the attackers of only nine killed and wounded.

Other places surrendered in quick succession, and on the 20th March General Munro arrived before Belgaum, occupied the town, and laid siege to the fort which had a garrison of 1600 men, and large number of guns. The fort was very strong with massive walls surrounded by a ditch, and it was not until the first week in April that a practicable breach was effected; on the 10th the garrison surrendered, having suffered a loss of seventy killed and wounded during the siege; the English casualties amounted to half that number. Thirty-six large and sixty small guns were captured.

From Belgaum General Munro marched against Sholapur, being reinforced on the way by the remainder of the Reserve, which brought his force of Regular troops, up to the full strength of a Brigade. He crossed the Gatpurba river on the 21st April and the Krishna, on the 26th. The fort of Sholapur was a fine specimen of Eastern architecture, built of granite. On one side was a spacious tank with a temple in the centre connected with

the shore by a stone causeway. On the other three sides the fort was surrounded by a wide wall and deep ditch cut in the solid rock. The entrance passed through three strongly fortified gateways, protected by heavy guns. Adjoining the fort on the western side was the native town, walled in, with round towers at intervals and several gates. General Munro was before Sholapur on the 9th May.

The fort had a garrison of a thousand men with 76 guns, and a considerable force, amounting in all to 850 horse and over 5000 infantry under the Mahratta chief Ganpat Rao, who had taken up a position under the walls. A native officer, Subadar Cheyn Singh of the 4th Madras Infantry, who had been selected for similar duties many times during the campaign on account of his singular intelligence and address, was sent to summon and offer terms to the garrison, but was cruelly murdered by the Arabs.

The assaulting troops moved to the attack of the town at dawn on the 10th May, preceded by pioneers carrying escalading ladders, and soon entered the place, when the gates were opened to admit the remainder of the attacking columns. In the meantime Ganpat Rao moved against the British reserve, opening fire with his field guns. But the British charged the enemy with the bayonet, and it is recorded that "General Munro led the charge in person, cheered vociferously by the European troops whose delight at the veteran's presence among them on such an occasion was an excuse for the noisy freedom with which he was hailed". Ganpat Rao was severely wounded, and the survivors of his force put to flight. They were pursued by the cavalry and galloper guns and dispersed with a loss of nearly a thousand killed.

After the attack on the town operations were undertaken against the fort, and by the 14th a practicable breach was made in the outer wall. The garrison surrendered the following morning. The capture of Sholapur brought General Munro's operations in the Southern Mahratta country to a successful conclusion.

Colonel Munro was made a C. B. and promoted Major-General for his services in the war. In speaking of those services Canning said in the House of Commons, "At the Southern ex-

tremity of this long line of operations, and in a part of the campaign far from public gaze, was employed a man whose name I should indeed be sorry to have passed over in silence. I allude to Colonel Thomas Munro, a gentleman of whose rare qualifications the late House of Commons had an opportunity of judging at their bar, on the renewal of the East India Company's charter, and than whom Europe never produced a more accomplished statesman, nor India, so fertile in heroes, a more skilful soldier. This gentleman, whose occupations for some years must have been rather of a civil and administrative than a military nature, was called early in the war to exercise abilities which, though dormant, had not rusted from disuse. He went into the field with not more than five or six hundred men, of whom a very small proportion were Europeans, and marched into the Mahratta territories, to take possession of the country which had been ceded to us by the treaty of Poona. The population, which he subjugated by arms, he managed with such address, equity, and wisdom, that he established an empire over their hearts and feelings. Nine forts were surrendered to him or taken by assault, on his way; and at the end of a silent and scarcely observed progress, he emerged from a territory heretofore hostile to the British interest, with an accession instead of a diminution of forces, leaving everything tranquil and secure behind him. This result speaks more than could be told by any minute or extended commentary."

Munro went to England on leave in January 1819, and having been appointed Governor of Madras, lauded in India again in May of the following year. The remaining years of his service are perhaps of less interest to readers of this Journal. It is unlikely that a soldier of the Indian Army will again rise to so high a post. Thomas Munro was eminently a man on the first plane, the peer of his contemporaries in other professions in learning, in politics, history, science, and literature. His letters of this period are full of instruction. They reveal alike the many-sided iridescence of his mind and the unselfishness of his devotion to his country and his duty. They cast an illuminating

light not only on the events of his own period but on the changing times in which we live. His views on war and policy, on men and events, are characterised by broad-minded and reasoned judgment.

He deprecates that lack of decision and definiteness in orders and instructions which is still the despair of executive officers in India. He advised that in their instructions the Board should not use such expressions as, "It is our wish" or "We propose;" that, unless the words "We direct", "We order" are employed, the measures to which they relate will be regarded as optional."

He states frequently his conception of "the indisputable duty of Europeans holding positions of trust to be thoroughly acquainted with the customs, habits, prejudices, and feelings of the people." He was above all things a liberal-minded man. He established schools in the districts for primary education, but from his writings it appears probable that he would have viewed with disapproval the wrong direction taken in concentrating on the higher education of a limited class rather than on the primary education of the majority.

While he dwells on the necessity for "all real military power being kept in our own hands," he considered that "natives should be admitted to a large share in the judicial and other services of Government," and be made "eligible to every civil office under that of Member of the Government." But he rightly considered that such changes should be gradual, "because the natives are not yet fit to discharge properly the duties of a high civil employment, according to our rules and ideas; but the sphere of their employment should be extended in proportion as we find that they become capable of filling properly higher situations." It would be interesting to have his views today!

He wrote in 1821:—"I always dread changes at the head of the India Board, for I fear some downright Englishman may at last get there who will insist on making Anglo-Saxons of the Hindus. I believe there are men in England who think that this desirable change has already been effected in some degree; and that it would long since have been completed had it not been



opposed by the Company's servants. I have no faith in the modern doctrine of the rapid improvement of the Hindus or any other people. The character of the Hindus is probably much the same as when Vasco de Gama first visited India, and it is not likely that it will be much better a century hence."

His views regarding a free Press are to some extent prophetic, expressed as they were a hundred years ago. "A free press and the dominion of strangers are things which are quite incompatible, and which cannot long exist together; for what is the first duty of a free press? It is to deliver the country from a foreign yoke, and to sacrifice to this one great object every measure and consideration; and if we make the press really free, it must inevitably lead to this result."

Sir Thomas Munro held office as Governor of Madras for seven years. A melancholy interest attaches to his last days. He had a year before the end asked to be relieved of his appointment for he was weary of a life of exile extending over nearly half a century, and he had hoped to pass the evening of his days with his family in his native land, whither they had preceded him. But this was not to be. In May 1827 he proceeded on a tour through the Ceded Districts and on the night of the 6th July he succumbed to an attack of cholera at the village of Pattikonda near Gooty. He passed away in the plenitude of power and achievement. In the country to which he had given the best years and energies of his life he is still remembered. Many landmarks connected with his times are pointed out, trees that he planted, and places where he encamped; and the tradition of his great character and achievements has been passed down from generation to generation. He has attained that immortality of the soul which has been defined as "remembrance left behind in the minds of men." To this day the name of Munrolappa, given by the inhabitants of the Baramahal to their children, testifies to the veneration in which his memory is held in the country that was the scene of his activities more than a century ago. His dust mingles with that of other illustrious men beneath the pavement of the church in Fort St. George.

## **R A I D S.**

BY

LIEUT. R. ABIGAIL.

ATTACHED TO 2-7TH GURKHAS.

Raids on a large scale were first made by the Canadians on Nov. 23. 1915, near the WYTSCHAETE MESSINES road and by the Gloucesters on Nov. 25, at the BOIS DE GOMMECOURT. Previous to that date patrols had on occasion paid flying visits to the German lines, but these scraps hardly deserve the name of raids, for they were left to the casual enterprise of the patrol leader and the sporting passion of the moment, whereas raids are now carefully organised, and frequently referred to the higher command for their sanction. Since Nov. 1915, raids have become the fashion and two or three are made each night on the front of Divisions in the line.

Bombers may be employed on three main occasions:—

- (1) General attack.
- (2) Local attacks.
- (3) Minor enterprises, such as raids.

In (1) and (2) bombers play a minor part, because bombing does not lend itself to a rapid or large advance. In raids, however, bombers play an important part and few weapons other than bombs are carried.

A further distinction is that raiding parties make no attempt to consolidate the trenches cleared, they get in, and get out, doing as much damage as they can without loss and as soon as they can.

### **OBJECTIVES.**

Raids in many ways resemble the old reconnaissance in force. They serve to get information of the morale of the enemy, the troops in his line, and their strength. Much can be learnt, not only from prisoners, but from shoulder straps and documents, ammunition and rifles. Further, machine gun emplacements can be located, also dugouts, gas cylinders, flame throwers, mine shafts, "minnies," not only located, but destroyed. Information can also be gained of the number of German batteries, their position, their speed in replying to our fire, their S. O. S. signal;

## ***Raids.***

also microphones have often picked up telephone messages, conveying information which, had the occasion not been urgent, would not have been sent over the wires. Above all a successful raid adds greatly to our own morale and discourages the enemy.

### **DURATION.**

Raiding parties as a rule do not stay in an enemy trench for more than a quarter of an hour, for that is the time the German batteries usually take to reply; this will however vary locally, and speaking roughly, raiding parties should withdraw before they are too closely engaged by the enemy in a counter-attack. Where, however, the size of the raiding party admits, they need not withdraw so soon. In some Corps, notably by ARRAS, where raiding parties have been 200 strong, raids have lasted two or three hours.

### **SELECTION OF SITE.**

Enemy strong points give great scope for raids and need not be avoided because of their strength, as success will mean more information gained, more prisoners taken and more damage done. In general, raids should not be made on a wider front than 100 yds, though this will vary with the size of the raiding party, but even so, operations on a wide front are hard to control, and for that reason have less chance of success.

Choose with care a line of approach under cover, and with few obstacles. Do not copy the German party, who, on a raid choose to cross a chalk-pit 60 feet deep. Good cover can be found in dead ground, ditches, hedges, or long grass. The same care should be taken in choosing a line by which to withdraw; want of such care will mean loss of men, loss of cohesion, and the escape of your prisoners. Avoid flanking fire; do not attack a line between two enemy salients from which machine guns may bring cross fire to bear upon you. Again, do not attack a trench that is in dead ground, because the F. O. O. cannot see if the guns have cut the wire there or not.

### **SELECTION OF MEN.**

The bombing officer, battalion or brigade, will now find, if he has not before, that his job is no sinecure. His duty is to

assist in training if not to lead, the raiding party. Volunteers will be called for from companies with the request that men of the "oldest inhabitant" type should not figure on the roll, but rather those who are used to patrols and wiring. The strength of the raiding party varies with the magnitude of the raid. Some Corps choose as many as 200 men, but such large bodies are hardly suitable for such a minor operation as a raid. On an average, 25 men to every 50 yards of front is a fair proportion, though sometimes the practice has been not to employ more than 20 men. Over and above the raiding party, there may be a covering party which will cover the withdrawal and supply reinforcements, or more bombs as needed. This will, as a rule, include one or more Lewis guns. Further, if it is desired to blow up machine gun or trench mortar emplacement, mine shafts, or dug-outs, demolition parties must be included.

**EQUIPMENT.**

Rifles are of little value on a raid, for firing at night has little effect. Even bayonet men are better armed with revolvers, bludgeons, knuckle-dusters, or knives. Only rifle bombers must carry rifles. Over and above these weapons, every man should carry from a dozen to eighteen grenades, among which there should be a proportion of petrol smoke, or gas bombs. Apart from these instruments of offence, group leaders must carry a luminous compass and watch, for it is easy at night to lose count both of direction and of time. Wire cutters, both hand and rifle, are of course essential and may save time when wire is unbroken. If there are any obstacles in No Man's Land to cross, or if the second line is to be raided as well as the first, ladders should be painted dark, so as not to be seen as they are carried along. Moreover, they make a useful barricade. For demolitions, ammonal bars, Bangalore torpedoes, boxes of guncotton slabs, primers, fuse and detonators must be remembered.

**TRAINING.**

The men should be entirely withdrawn from their companies, and trained together to give them confidence in each other

and make them one unit. Training should not last more than a week or at most a fortnight, otherwise men will become stale and lose interest. They should be trained while the battalion is in the line, for this will make reconnaissance more easy and the nearer the training ground is to the line the less chance there will be of information about the raid reaching the enemy. Moreover, the raid may be timed to take place the last night the battalion is in the trenches. By this expedient the counter strafe may be avoided!

Training should be carried out by day and night on trenches dug or taped to represent the German trenches and the raid can be rehearsed in detail, but care must always be taken to keep the raid dark, a precaution that has not on occasion been taken, with the result that the Germans have had warning and the raid has been a failure. Practise movement by night, which is very essential for patrols. Physical and bombing drill are of great value, also boxing and wrestling. Learn the use of a tableknife and fork, a shrapnel helmet, an ammunition boot and the teeth as offensive weapons. The object of this is to make the men have confidence in themselves as well as their weapons, so that in the dark, if they and their weapons are separated, they can, when engaged in a hand-to-hand scuffle in a narrow trench, make use of those things on their person. I think it is safe to say that the majority of men on service carry their knife and fork stuck in their puttees. Imagine the savage jab in the face or neck from a fork, the upward jerk of a shrapnel helmet on a protruding chin, or the effect of teeth biting one's ear.

#### **PRELIMINARIES.**

A. Reconnaissance. Everyone should be shown the site of the raid from maps and aeroplane photographs, but these are not enough. Point out the site by day, and patrol by night from a compass bearing. If not all the raiding party, at least group leaders and officers should take part in this reconnaissance. It is not a bad plan to verify on a misty morning the results of the previous night.

B. Patrols. "No Man's Land" is a misnomer. The land between the trenches should be British. Above all, before raids, Germans should be taught to give it a wide berth. Their consequent loss of morale will help us in the assault, and prevent discovery of the raiding party while it is moving into position. But care should be taken to avoid too obvious a liveliness of a sudden, for this will only warn the enemy that some new devilment is afoot.

C. Artillery Support. Call on the guns to cut lanes in the wire. This again needs care so as to lead the enemy to imagine that nothing more than the evening strafe is on. Such an idea may be fostered by bursts of fire now and again on many days against the wire. Create a box barrage round the entrance and exit of the raiding party. To facilitate this, telephonic communication should be kept up by the raiding party with an F. O. O. who is best with the covering party, and thence to the battery. In many cases the first shell in the barrage has been the signal for the raid to begin. Fuller details may be found in the account of a raid at the end of this lecture.

D. Co-operation of Lewis guns, rifle grenades, trench engines and Stokes guns. These are useful to assist in the barrage. Machine guns can raise the wind among the German supports by indirect fire, and also drown the noise of wire-cutting by patrols, previous to the raid. Lewis guns are invaluable on a flank to cover withdrawal.

E. Communication. This is of prime importance and is kept up by the raiding party with the covering party and F. O. O., and thence to out-trench by telephone or flash lamp.

F. Warning. Flank battalions should be warned of the raid and cautioned not to fire rifles or mortars on the raiding party. This has not always been seen to, especially where the raid has been on a small scale.

#### **SELECTION OF TIME.**

Keep the hour and day dark till the last moment, as surprise contributes very largely to success and leakage of information to failure. The time of course will vary to suit local con-

ditions. Do not raid when enemy trenches are likely to be full of men as at "Stand to", during a relief, or when the sentries are changed. Again, do not raid at the hour which the enemy devote to artillery, machine gun or rifle practise. Some, like Macbeth, prefer a dark and stormy night "in thunder, lightning, or in rain" to drown the noise of their approach, but this may lead, and most often does lead, to loss of direction and control. Cloudy nights and a fitful moon are best, for the clouds hide the attack from the sentries, and when the raid is in full swing the moon shows up what is happening and makes control more easy. Frequently raids have been made by day as at ARRAS and at MONCHY, but particulars are not available. Quite a number of successful attacks were made on the SOMME after lunch, when the German is most likely to be sluggish, especially where dead ground makes approach easy, and these same factors may have played a part in the success of the raids.

### **ASSAULT.**

Move noiselessly through the gaps in our own wire, which should be cut aslant to avoid detection by the enemy. Lay a trail of paper or a tape as you go, so that men do not lose their way back. Everyone should get into position as near the German trench as possible. Then on a given signal assault. A good signal is the first shell of our barrage. If a path has not been cut through the wire, make one, covering the work with smoke bombs and Mills. Then let the raid rip; speed is absolutely necessary. Picket all side trenches and dugouts, take no risk of attack from the rear, and post men on the parapets to give warning of attack overland. Above all, keep touch by means of passwords, Very lights, or flares.

### **WITHDRAWAL.**

Withdraw, before too hotly engaged by an enemy counter-attack, on a given signal, such as a bugle or a rocket. In some cases raids have been carried out to a time table, though men do not always look at their watches during a fight. Enemy artillery ranging on No Man's Land or on our front line trenches make it hard to avoid casualties on the way back. Officers should use

their discretion, whether they will run the gauntlet or lie doggo until all is quiet again. Sometimes a Lewis gun is left to squash enemy reprisals. Close the gaps in our wire at once, and, where possible gather up the guiding tape so that the enemy may be in the dark as to what battalion raided his line. Call a muster roll at once and send out patrols to recover the missing. Examine men as soon as they return because a few days grace will give men time to embroider their actual achievement. An intelligence officer is necessary to examine German prisoners at once, for if left alone they will quite rightly keep their mouths shut.

**MISCELLANEOUS.**

1. Canadians, when raiding over snow, have worn night-gowns as protective colouring.

2. To blacken the face or to wear a mask is a common custom as pink faces show easily at night.

3. Torches attached to rifles are useful to those who have to picket dug-outs.

4. Prisoners' escorts should be previously detailed with instructions to remove all prisoners to the rear at once after capture. They are responsible that all prisoners reach our line safely.

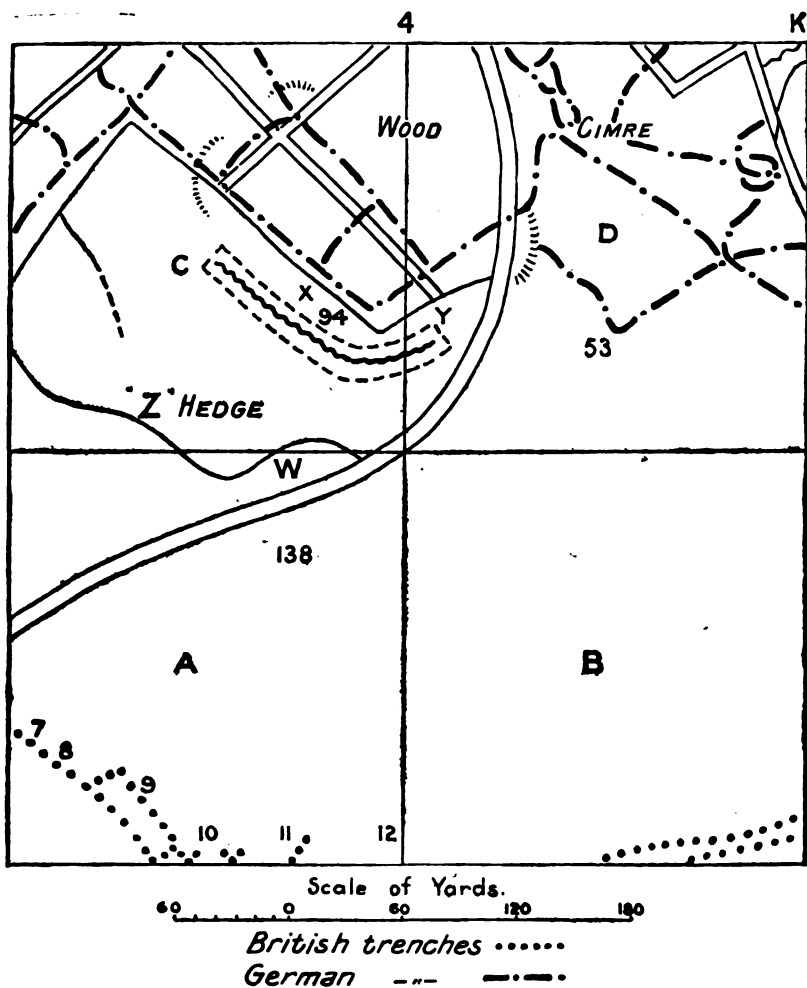
5. Stretcher bearers should be with the covering party.

6. Everyone should take off identification marks, letters etc, previous to the raid, for it is as important to keep information out of the enemy's hands as to learn all we can about him.

7. Passwords are very necessary, both in the German trench and when retiring on our own. Many men have been shot by their own comrades through neglect of this elementary precaution.

Below is a very good example of a well planned and successful raid.



**Raids.**

**BOMBING RAID ON THE GERMAN TRENCHES.  
SCHEME.**

To raid the German trenches and shelters K. 4. c. O. 4. (S. E. corner of GOMMECOURT WOOD) and obtain prisoners and informations, as to the trenches, garrison etc. Strong works were known to exist at this point.

Strength of party—5 officers, 100 other ranks, of these, two parties of 25 each under an officer were to be told off to enter

trenches at X and Y on attacked plan. The remaining three officers and 50 other ranks to be in support in Z hedge at W on plan. As soon as the two parties are in position 70 yards from the German trench, "Ready" to be signalled back to the artillery; to commence first barrage as shown on plan. The object of this barrage was to make the German sentries take cover, drown the noise of our party approaching and cutting the wire, and subsequently to prevent German reinforcements coming up from second line

The first gun was to be the signal for the assaulting party to rush. Bombing parties were to be left at each communication trench, and the remaining portions of the two assaulting parties were to work to the central point, and then retire on to the supports. The whole party then to retire to our trenches, and a second barrage to be opened to cover retirement.

#### **EXECUTION.**

A preliminary bombardment took place on the afternoon prior to the raid to cut the wire, damage trenches, and attract a working party from whom prisoners were likely to be obtained. The scheme was rehearsed both by day and night on a similar portion of our own trench.

The preliminary bombardment was successfully executed by artillery at 2-40 p.m. on the 25th. At 11-5 p.m. 1 officer and ninety men of "C" company left their trenches and reached the Z hedge, joining the garrison consisting of 1 officer and 20 other ranks, who had been there since dark to prevent the Germans occupying it and to keep off any hostile patrols. The two parties of 1 officer and 25 men each moved off at 12-20 a.m. Owing to the bright moonlight they had to move very slowly, and reached the position of readiness 70 yards from the German trench at 12-45 a.m.

The officer commanding the company received reports by telephone at 12-58 a.m. that they were ready to assault. He waited for a cloud to cover the moon before asking advanced R. A officer for No. 1 barrage. At 1-1 a.m. the signal "Ready" was sent back to the artillery who opened fire at 1-5 a.m. and both parties rushed.

**Raid.****LEFT PARTY.**

This party cut through two wire entanglements, the second one being very new strong thick wire, five yards deep. The unavoidable noise and delay caused by this gave the enemy sentries the alarm. One officer and ten men got into the trench, the officer shot two men, and the first dugouts were bombed. The enemy then retired along the trench to the left and twelve bombs were thrown at our party from the trench parallel in rear. Touch was gained with the right party, but the officer was wounded with a bomb which fell at his feet. This party then retired bringing in all their wounded, but one of the latter was killed on the way back by a chance bullet.

**RIGHT PARTY.**

This party only found low wire and entered the German trench without alarming the enemy. The first shelter was a telephone office, and a German coming up the steps was called upon to surrender. As he did not do so, the officer in charge of the party shot him, and the shelter was then bombed with three bombs. A blocking party was established and the N. C. O. in charge pulled over a sump cover which effectually prevented the German supports from reaching our party. Led by an officer they proceeded down the trench and bombed six shelters in succession. They took three unarmed German prisoners, but as these were being passed down the trench for evacuation, they darted into a shelter and reappeared armed, and attacked our party in the rear and consequently were killed. Having lost touch with the left party, they retired up the trench, but found it full of Germans who had apparently been reinforced by means of underground passages. This trench was bombed most successfully. They then climbed out and retired with all their wounded. The officer in charge of the party had himself been previously wounded, by a pistol bullet from a German officer, whom he killed with his revolver. The Germans pursued but were driven back with bombs. The party safely reached the edge of our trench with the exception of one who had been sent back with a message to the signallers and was never subsequently seen. One wounded prisoner was brought in by the party.

**WITHDRAWAL**

The officer commanding the company having collected the whole of the party at the Z hedge, telephoned the R. A. to stop the first barrage, and sent his men back to the trenches in small parties by pre-arranged routes. An officer with a rifle grenade party moved off to the left and enfiladed the enemy trenches which were presumably crowded. The whole of the party returned without further casualties.

*Our Casualties.*

Killed	...	...	...	1 man.
Missing	...	...	...	1 man.
Wounded	...	...	...	2 officers and 17 other ranks.

All the wounded were slight cases and five returned to duty at once. The raid was successful in that it must have accounted for a large number of Germans caught crowded in big deep shelters and bombed. From the prisoner's statement the garrison in the trench at the time of the raid was a company 150 strong. Eight Germans were killed in the trench outside the shelters. The success of the enterprise was due to the bravery and keenness of both men and officers, and to the careful previous rehearsing and organisation of the parties, full advantage being taken of the information which had been collected and circulated after the former attacks.

**BOMBS**

The grenades used were all No. 5. They were new and freshly detonated and none failed to explode, but they were difficult to throw so as to reach the bottom of the deep shelters without lodging on the steps. Bombs containing heavy gases would have absolutely prevented the enemy from reinforcing through the deep shelters and underground tunnels as they did.

**CONDITION OF GERMAN TRENCHES**

The trenches were in a very good condition and were revetted with rabbit wire and stakes about 15 feet deep, and there were firing bays for three men each with good steps leading up to them. The trenches were in chalk and were not boarded, but there

were sump holes. The shelters were very deep, some with spiral staircases, which appeared to be connected with each other by underground tunnels and back to the second line. Traverses were eight to nine feet broad. The high wire that was encountered, i. e. to the right, offered no obstacle. The Germans appeared to have some method of pulling up a single wire as this was met by our party on leaving the trenches, though it was not there when they went in. A few specially prepared rifle pits were found just outside the parapet. They were 4 feet square by 4 feet deep.

The trenches appeared practically undamaged by our artillery bombardment of the previous afternoon.

#### **COMPOSITION, FORMATION, AND EQUIPMENT OF THE STORMING PARTY.**

*Each assaulting column was formed as under:—*

- 1 Officer.
- 4 Men with rifles and fixed bayonets.
- 4 Men each carrying 12 bombs, a bludgeon, and a bayonet as a dagger.
- 4 Men, each with bludgeon and bayonet as dagger.
- 4 Men, each with revolvers.
- 4 Men with 12 bombs each, bludgeon, and bayonet as daggers.

These last two parties for blocking trenches.

- 2 Telephone men with instrument to remain at the point of entrance.

*Support Party at Z hedge—*

- Officers.
- 6 Grenadiers with rifle grenades.
- 50 men in fighting order with rifles, bayonets, and reserve bombs.

- 1 Officer—R. F. A. with telephone and operator.

Telephone operators for infantry with three instruments.

*Communication—*

Both artillery and infantry had separate new telephone lines, laid from artillery O. P., in our trenches to

supports at Z hedge. Each assaulting party took a telephone and two operators forward with lines back to two separate instruments at Z hedge. Instruments for assaulting parties were tuned down to buzz quietly. Communications worked perfectly and touch was never lost.

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and make them one unit. Training should not last more than a week or at most a fortnight, otherwise men will become stale and lose interest. They should be trained while the battalion is in the line, for this will make reconnaissance more easy and the nearer the training ground is to the line the less chance there will be of information about the raid reaching the enemy. Moreover, the raid may be timed to take place the last night the battalion is in the trenches. By this expedient the counter strafe may be avoided!

Training should be carried out by day and night on trenches dug or taped to represent the German trenches and the raid can be rehearsed in detail, but care must always be taken to keep the raid dark, a precaution that has not on occasion been taken, with the result that the Germans have had warning and the raid has been a failure. Practise movement by night, which is very essential for patrols. Physical and bombing drill are of great value, also boxing and wrestling. Learn the use of a tableknife and fork, a shrapnel helmet, an ammunition boot and the teeth as offensive weapons. The object of this is to make the men have confidence in themselves as well as their weapons, so that in the dark, if they and their weapons are separated, they can, when engaged in a hand-to-hand scuffle in a narrow trench, make use of those things on their person. I think it is safe to say that the majority of men on service carry their knife and fork stuck in their puttees. Imagine the savage jab in the face or neck from a fork, the upward jerk of a shrapnel helmet on a protruding chin, or the effect of teeth biting one's ear.

#### **PRELIMINARIES.**

A. Reconnaissance. Everyone should be shown the site of the raid from maps and aeroplane photographs, but these are not enough. Point out the site by day, and patrol by night from a compass bearing. If not all the raiding party, at least group leaders and officers should take part in this reconnaissance. It is not a bad plan to verify on a misty morning the results of the previous night.

**B. Patrols.** "No Man's Land" is a misnomer. The land between the trenches should be British. Above all, before raids, Germans should be taught to give it a wide berth. Their consequent loss of morale will help us in the assault, and prevent discovery of the raiding party while it is moving into position. But care should be taken to avoid too obvious a liveliness of a sudden, for this will only warn the enemy that some new devilment is afoot.

**C. Artillery Support.** Call on the guns to cut lanes in the wire. This again needs care so as to lead the enemy to imagine that nothing more than the evening strafe is on. Such an idea may be fostered by bursts of fire now and again on many days against the wire. Create a box barrage round the entrance and exit of the raiding party. To facilitate this, telephonic communication should be kept up by the raiding party with an F. O. O. who is best with the covering party, and thence to the battery. In many cases the first shell in the barrage has been the signal for the raid to begin. Fuller details may be found in the account of a raid at the end of this lecture.

**D. Co-operation of Lewis guns, rifle grenades, trench engines and Stokes guns.** These are useful to assist in the barrage. Machine guns can raise the wind among the German supports by indirect fire, and also drown the noise of wire-cutting by patrols, previous to the raid. Lewis guns are invaluable on a flank to cover withdrawal.

**E. Communication.** This is of prime importance and is kept up by the raiding party with the covering party and F. O. O, and thence to out-trench by telephone or flash lamp.

**F. Warning.** Flank battalions should be warned of the raid and cautioned not to fire rifles or mortars on the raiding party. This has not always been seen to, especially where the raid has been on a small scale.

### **SELECTION OF TIME.**

Keep the hour and day dark till the last moment, as surprise contributes very largely to success and leakage of information to failure. The time of course will vary to suit local con-



ditions. Do not raid when enemy trenches are likely to be full of men as at "Stand to", during a relief, or when the sentries are changed. Again, do not raid at the hour which the enemy devote to artillery, machine gun or rifle practise. Some, like Macbeth, prefer a dark and stormy night "in thunder, lightning, or in rain" to drown the noise of their approach, but this may lead, and most often does lead, to loss of direction and control. Cloudy nights and a fitful moon are best, for the clouds hide the attack from the sentries, and when the raid is in full swing the moon shows up what is happening and makes control more easy. Frequently raids have been made by day as at ARRAS and at MONCHY, but particulars are not available. Quite a number of successful attacks were made on the SOMME after lunch, when the German is most likely to be sluggish, especially where dead ground makes approach easy, and these same factors may have played a part in the success of the raids.

### **ASSAULT.**

Move noiselessly through the gaps in our own wire, which should be cut aslant to avoid detection by the enemy. Lay a trail of paper or a tape as you go, so that men do not lose their way back. Everyone should get into position as near the German trench as possible. Then on a given signal assault. A good signal is the first shell of our barrage. If a path has not been cut through the wire, make one, covering the work with smoke bombs and Mills. Then let the raid rip; speed is absolutely necessary. Picket all side trenches and dugouts, take no risk of attack from the rear, and post men on the parapets to give warning of attack overland. Above all, keep touch by means of passwords, Very lights, or flares.

### **WITHDRAWAL.**

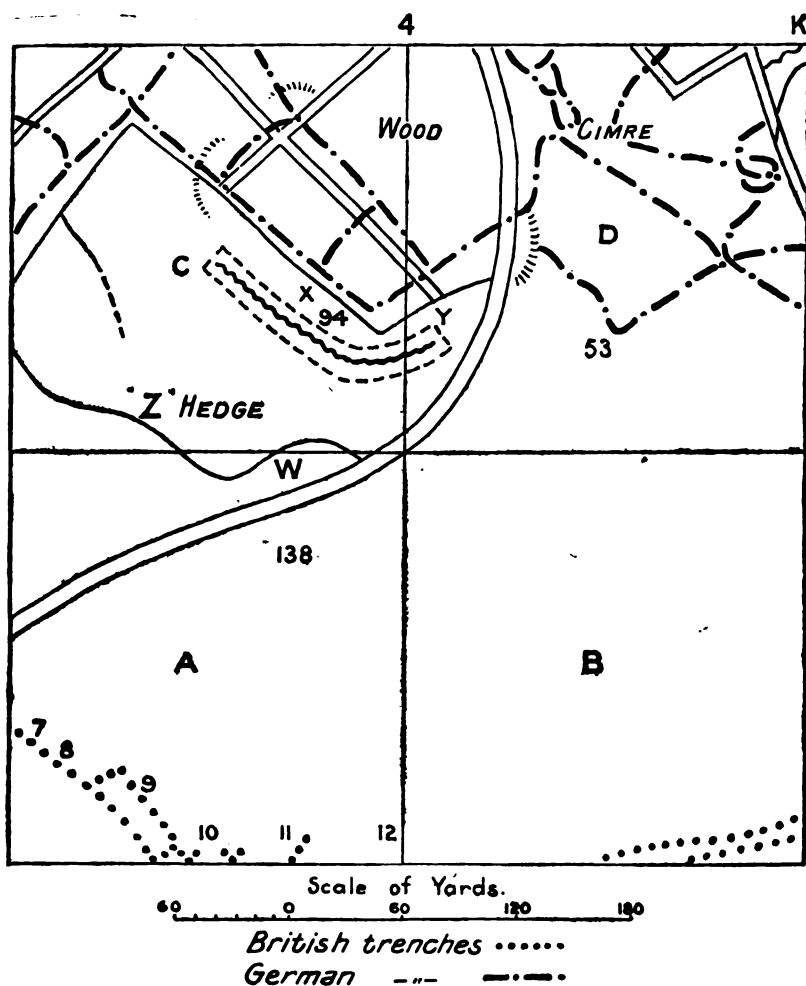
Withdraw, before too hotly engaged by an enemy counter-attack, on a given signal, such as a bugle or a rocket. In some cases raids have been carried out to a time table, though men do not always look at their watches during a fight. Enemy artillery ranging on No Man's Land or on our front line trenches make it hard to avoid casualties on the way back. Officers should use

their discretion, whether they will run the gauntlet or lie doggo until all is quiet again. Sometimes a Lewis gun is left to squash enemy reprisals. Close the gaps in our wire at once, and, where possible gather up the guiding tape so that the enemy may be in the dark as to what battalion raided his line. Call a muster roll at once and send out patrols to recover the missing. Examine men as soon as they return because a few days grace will give men time to embroider their actual achievement. An intelligence officer is necessary to examine German prisoners at once, for if left alone they will quite rightly keep their mouths shut.

**MISCELLANEOUS.**

1. Canadians, when raiding over snow, have worn night-gowns as protective colouring.
2. To blacken the face or to wear a mask is a common custom as pink faces show easily at night.
3. Torches attached to rifles are useful to those who have to picket dug-outs.
4. Prisoners' escorts should be previously detailed with instructions to remove all prisoners to the rear at once after capture. They are responsible that all prisoners reach our line safely.
5. Stretcher bearers should be with the covering party.
6. Everyone should take off identification marks, letters etc, previous to the raid, for it is as important to keep information out of the enemy's hands as to learn all we can about him.
7. Passwords are very necessary, both in the German trench and when retiring on our own. Many men have been shot by their own comrades through neglect of this elementary precaution.

Below is a very good example of a well planned and successful raid.

**Raids.**

**BOMBING RAID ON THE GERMAN TRENCHES.  
SCHEME.**

To raid the German trenches and shelters K. 4. c. O. 4. (S. E. corner of GOMMECOURT WOOD) and obtain prisoners and informations, as to the trenches, garrison etc. Strong works were known to exist at this point.

Strength of party—5 officers, 100 other ranks, of these, two parties of 25 each under an officer were to be told off to enter

trenches at X and Y on attacked plan. The remaining three officers and 50 other ranks to be in support in Z hedge at W on plan. As soon as the two parties are in position 70 yards from the German trench, "Ready" to be signalled back to the artillery; to commence first barrage as shown on plan. The object of this barrage was to make the German sentries take cover, drown the noise of our party approaching and cutting the wire, and subsequently to prevent German reinforcements coming up from second line

The first gun was to be the signal for the assaulting party to rush. Bombing parties were to be left at each communication trench, and the remaining portions of the two assaulting parties were to work to the central point, and then retire on to the supports. The whole party then to retire to our trenches, and a second barrage to be opened to cover retirement.

#### **EXECUTION.**

A preliminary bombardment took place on the afternoon prior to the raid to cut the wire, damage trenches, and attract a working party from whom prisoners were likely to be obtained. The scheme was rehearsed both by day and night on a similar portion of our own trench.

The preliminary bombardment was successfully executed by artillery at 2-40 p.m. on the 25th. At 11-5 p.m. 1 officer and ninety men of "C" company left their trenches and reached the Z hedge, joining the garrison consisting of 1 officer and 20 other ranks, who had been there since dark to prevent the Germans occupying it and to keep off any hostile patrols. The two parties of 1 officer and 25 men each moved off at 12-20 a.m. Owing to the bright moonlight they had to move very slowly, and reached the position of readiness 70 yards from the German trench at 12-45 a.m.

The officer commanding the company received reports by telephone at 12-58 a.m. that they were ready to assault. He waited for a cloud to cover the moon before asking advanced R. A officer for No. 1 barrage. At 1-1 a.m. the signal "Ready" was sent back to the artillery who opened fire at 1-5 a.m. and both parties rushed.

**Raids.****LEFT PARTY.**

This party cut through two wire entanglements, the second one being very new strong thick wire, five yards deep. The unavoidable noise and delay caused by this gave the enemy sentries the alarm. One officer and ten men got into the trench, the officer shot two men, and the first dugouts were bombed. The enemy then retired along the trench to the left and twelve bombs were thrown at our party from the trench parallel in rear. Touch was gained with the right party, but the officer was wounded with a bomb which fell at his feet. This party then retired bringing in all their wounded, but one of the latter was killed on the way back by a chance bullet.

**RIGHT PARTY.**

This party only found low wire and entered the German trench without alarming the enemy. The first shelter was a telephone office, and a German coming up the steps was called upon to surrender. As he did not do so, the officer in charge of the party shot him, and the shelter was then bombed with three bombs. A blocking party was established and the N. C. O. in charge pulled over a sump cover which effectually prevented the German supports from reaching our party. Led by an officer they proceeded down the trench and bombed six shelters in succession. They took three unarmed German prisoners, but as these were being passed down the trench for evacuation, they darted into a shelter and reappeared armed, and attacked our party in the rear and consequently were killed. Having lost touch with the left party, they retired up the trench, but found it full of Germans who had apparently been reinforced by means of underground passages. This trench was bombed most successfully. They then climbed out and retired with all their wounded. The officer in charge of the party had himself been previously wounded, by a pistol bullet from a German officer, whom he killed with his revolver. The Germans pursued but were driven back with bombs. The party safely reached the edge of our trench with the exception of one who had been sent back with a message to the signallers and was never subsequently seen. One wounded prisoner was brought in by the party.

**WITHDRAWAL.**

The officer commanding the company having collected the whole of the party at the Z hedge, telephoned the R. A. to stop the first barrage, and sent his men back to the trenches in small parties by pre-arranged routes. An officer with a rifle grenade party moved off to the left and enfiladed the enemy trenches which were presumably crowded. The whole of the party returned without further casualties.

*Our Casualties.*

Killed	...	...	...	1 man.
Missing	...	...	...	1 man.
Wounded	...	...	...	2 officers and 18 other ranks.

All the wounded were slight cases and five returned to duty at once. The raid was successful in that it must have accounted for a large number of Germans caught crowded in big deep shelters and bombed. From the prisoner's statement the garrison in the trench at the time of the raid was a company 180 strong. Eight Germans were killed in the trench outside the shelters. The success of the enterprise was due to the bravery and keenness of both men and officers, and to the careful previous rehearsing and organisation of the parties, full advantage being taken of the information which had been collected and circulated after the former attacks.

**BOMBS.**

The grenades used were all No. 5. They were new and freshly detonated and none failed to explode, but they were difficult to throw so as to reach the bottom of the deep shelters without lodging on the steps. Bombs containing heavy gases would have absolutely prevented the enemy from reinforcing through the deep shelters and underground tunnels as they did.

**CONDITION OF GERMAN TRENCHES**

The trenches were in a very good condition and were revetted with rabbit wire and stakes about 10 feet deep, and there were firing bays for three men each with good steps leading up to them. The trenches were in chalk and were not boarded, but there

were sump holes. The shelters were very deep, some with spiral staircases, which appeared to be connected with each other by underground tunnels and back to the second line. Traverses were eight to nine feet broad. The high wire that was encountered, i. e. to the right, offered no obstacle. The Germans appeared to have some method of pulling up a single wire as this was met by our party on leaving the trenches, though it was not there when they went in. A few specially prepared rifle pits were found just outside the parapet. They were 4 feet square by 4 feet deep.

The trenches appeared practically undamaged by our artillery bombardment of the previous afternoon.

#### **COMPOSITION, FORMATION, AND EQUIPMENT OF THE STORMING PARTY.**

*Each assaulting column was formed as under:—*

1 Officer.

4 Men with rifles and fixed bayonets.

4 Men each carrying 12 bombs, a bludgeon, and a bayonet as a dagger.

4 Men, each with bludgeon and bayonet as dagger.

4 Men, each with revolvers.

4 Men with 12 bombs each, bludgeon, and bayonet as daggers.

These last two parties for blocking trenches.

2 Telephone men with instrument to remain at the point of entrance.

*Support Party at Z hedge—*

Officers.

6 Grenadiers with rifle grenades.

50 men in fighting order with rifles, bayonets, and reserve bombs.

1 Officer—R. F. A. with telephone and operator.

Telephone operators for infantry with three instruments.

*Communication—*

Both artillery and infantry had separate new telephone lines, laid from artillery O. P., in our trenches to

supports at Z hedge. Each assaulting party took a telephone and two operators forward with lines back to two separate instruments at Z hedge. Instruments for assaulting parties were tuned down to buzz quietly. Communications worked perfectly and touch was never lost.

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## **THE HIGHER AND LOWER HINDUSTANI EXAMINATIONS.**

BY MAJOR G. BENSON-COOKE, 1-109TH INFANTRY.

Among the many changes brought about by the war has been the introduction of the colloquial Hindustani examination, to meet the special case of officers temporarily attached to the Indian Army.

The present system of intensive training and the many calls which there are on an officer's time nowadays do not allow of subalterns spending the time on preparation for language examinations, which they would have had at their disposal before the war.

The success, which has attended the introduction of this examination in ensuring that officers are fitted to carry out the ordinary work of their companies, raises the question as to how far the present higher and lower standard Hindustani examinations might be adopted to approximate more nearly to the colloquial examination.

Is there, that is to say, anything in the syllabus of the two former examinations which practice has shewn to be superfluous.

Let us compare the pre-war professional examinations, C. and D., with the two Hindustani examinations.

The trend of the C. and D. Examinations has been gradually to become more and more practical.

In law an officer is only called upon to solve questions he would meet with in the course of his work, say on a Court Martial.

That is to say he is given the book in the examination room and has to find the reference he requires, just as he would on a Court Martial or Court of Inquiry.

The other subjects are equally practical. It is not too much to say that if a number of officers who had already passed C. and D. were suddenly called upon to sit down and answer a paper in these subjects or were sent out to do the practical test, the bulk of them would have no difficulty in passing.

The reason being that the examination is a true test of a man's knowledge of his profession and, if he carries out his normal duties as a regimental officer, he must keep himself always up to the standard required by a C. and D. board.

The same cannot however be said of the higher or lower Hindustani examinations

The number of officers who could at any moment satisfy the board of examiners in say the written exercise or even, in many cases, the text book would be remarkably small.

On the other hand it might safely be assumed that they would all pass in conversation.

This means to say that these examinations, as they now stand, aim at teaching something which is not required.

The corollary would appear to be that time might be economised by dropping the superfluous subjects and devoting the energy saved to something else.

A part of that something else might with advantage be the acquisition of a much greater fluency in conversation, the standard of which suffers at present by reason of the time which has to be devoted to exercises and text books.

To justify the retention of written exercises and the text book in their present form it should be shewn that a candidate's knowledge of colloquial Hindustani would suffer by their removal, and that is difficult to do.

Practically no one has time to worry out chits in the vernacular nowadays, and they are nearly always translated by a clerk.

A knowledge of vernacular writing is certainly very desirable, but the difficult "chit" is not worth the time required to work it out.

The text books may be very beautiful literature, but few officers beguile their spare moments by rereading them after once passing the examination.

On the other hand facility of reading the "Fauji Akbar" or indeed any Indian newspaper would be not only good practice in the language, as it is spoken and understood by

Indians to-day, but it would in some cases encourage officers to keep in touch with Indian ideas by reading their papers.

Few have come across an Indian Officer or a sepoy who cherished a copy of the *bagh o babar*, while an increasing number of them nowadays read newspapers, the very names of which are unknown to most of us.

Not many people grasp the extent to which English words and phrases are being incorporated into Hindustani; the text books will not tell them this, the newspapers will.

Urdu is only the language of the camp, and at the rate at which camps are changing today it is only to be expected that the language will do the same, even if the purist and the degree of honour man shudders at the expressions he hears used.

A language is after all only the means by which one person makes known his wishes or thoughts to another, either by word of mouth or in writing.

To become sufficiently proficient in a foreign language to be able to appreciate its literature requires not only more time than the average regimental officer has at his disposal nowadays, but over and above that a real bent for languages, a peculiar disposition which is not often found in the average man.

For those who are fortunate enough to possess this ability there are the further examinations in the language, the rewards for which enable a student to pursue his hobby, with the added prospect of profit at the end of it.

To pass the present higher standard examination, the average man has to spend several hours a day studying for some months, and it would appear that a much better return for this time could be obtained, if the syllabus of the examination were such that it forced him to spend these hours, not with the munshi or pouring over books, but talking to Indians of different classes and so gaining a practical knowledge of the language, combined with some idea of their views of life and of the general questions of the day.

Language examinations in Latin and Greek usually include a fair number of questions on the history of those peoples. The inclusion of a knowledge of the salient points in Indian history, and especially of the history of different classes and a general knowledge of the different religions, would be a welcome innovation in the present syllabus. The Rajputana Musulman loves to talk to one of the past glories of Delhi, the Mahratta will gladly tell you of Shivaji Maharaj, of the scaling of fort walls on dark nights by means of a rope taken up, tied to an iguana. Some knowledge of the many tales and traditions of the different races who go to make up this great empire would certainly give young officers a more human idea of the country than they usually possess and would provide them with subjects for conversation with Indian Officers and men on long route marches or when returning from field days.

At present young officers are too prone to talk on these occasions solely with another of their kind, or to ride in solitary state on their ponies, bored and longing for the march to be over.

An examination which necessitated a higher standard of conversation would force them to seize every opportunity for conversation with Indians.

An examiner in Hindustani has frequent opportunities of noting the great difference between the conversational powers of the various candidates who come before him.

There is first of all the man who was probably good at classics at school. His knowledge of the grammar of the language is very good, he finds no great difficulty in disposing of the written exercises, while the text book and the unseen passage are quite easy to him. When he comes up for subject "a", conversation, he generally carries on pretty well, if he only has to talk to the examiner or a good Hindustani speaking orderly, but there is no life in his conversation, no fluency.

He differs entirely from the candidate, who, while he has probably failed once or twice in the written part of the examination, is able to carry on a fluent if somewhat ungrammatical conversation with any Indian.

Often such candidates as the latter, cannot be marked as highly by a conscientious examiner as the former class; and yet the examiner himself knows that the man before him has a far more practical knowledge of the language.

He knows that this man has spent his time in talking to sepoys, shikaris, coolies, any and every class of Indian. It may be that it is no virtue on the part of the candidate that he has a facility for the language; he is possibly too lazy or indifferent where his books are concerned to devote sufficient time to their study, and he prefers to go out shooting to sitting indoors with a munshi.

But an examination in a language for grown men is not intended to be a form of moral instruction, it is purely a test of his proficiency in making himself understood and in understanding others.

Very frequently an Indian misunderstands what is said to him, even when it is perfectly correctly expressed and it often takes a minute or two of patient repetition and perhaps a change in the form of a question or statement before he grasps the speaker's meaning.

The, munshi taught candidate often entirely fails to spot that the man he has addressed has not caught his meaning; the candidate who is always speaking to Indians understands at once.

There is a great deal more in speaking Hindustani successfully than mere correctness of idiom or knowledge of theory; it is practice that is required. There seems to be a very fair case in favour of bringing Hindustani examinations into line with the other professional examinations as regards their practical utility.

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## **EMBARKATION. A LECTURE DELIVERED**

BY

BRIG. GENERAL R. S. ST. JOHN, C. I. E., D. S. O.

### *Introduction.*

Nothing has yet been authoritatively laid down as to an Embarkation Commandant's duties and full sphere of action.

During the present war we get so many changes due to experience gained and new demands that it is very difficult to say what is best and upon exactly what principles one should work.

The conditions and methods employed at each port are so different that criticism must be very reserved and it is not easy to say yet what are the best methods.

There are a thousand amusing and interesting things happening daily in embarkation work which, thank goodness, keep us all merry and bright in a very stuffy, [dirty atmosphere, but they cannot well be brought into a lecture or worked in to illustrate any principles.

What I am going to talk to you about deals almost entirely with hard facts, and all I can do is to tell you of some General Principles that must govern all embarkation work, also about conditions at Bombay; how they have been evolved; how they differ from those elsewhere; and leave you then to approach all embarkation work and organisation in the future in a very broadminded, helpful spirit, avoiding centralisation like the plague, and always to be prepared gladly to receive and examine suggestions, from no matter how inexperienced a person they may come.

### *Embarkation in General.*

As of course you all know, when the despatch by sea of forces from India has to be carried out, the arrangements for transport for mobilised units to the ports, and for their embarkation, are made by the Q. M. G's Department at Army Headquarters.

A Special Department of the Q. M. G. is charged with notifying to the responsible Naval Authorities the amount and

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description of sea transport required. This Naval Authority in India is the D. R. I. M.

I do not propose to deal with the movements to the ports which are made under Control nor the taking up of shipping by the D. R. I. M., but only with the selection of ports and arrangements in close connection with the ports selected, and the method of carrying on the work there.

One of the most important methods is the selection of and proper arrangements at the Port. The number of quays, wharves, docks etc. that will be required, the approaches to them, the transit sheds required, the accommodation for collecting and storing supplies etc, prior to despatch, the camps for troops concentrating, hospital arrangements, offices etc, coaling (bunkering).

The first point to consider therefore is the number of quays and wharves that will be required. This will depend on the tonnage that it is anticipated must be despatched each month, and the number of troops and animals to be embarked. Of course this is a most difficult thing to estimate, and so open your mouth wide when first taking over. It is far easier to give back wharves after a sound and workable scheme has been arranged for, than to add piecemeal to a meagre plan.

The selection of these wharves must depend very largely on the railway facilities and the approaches to them; the approaches and subsequent exits must be very carefully considered. Other points that must be very carefully gone into are the craneage, numbers and powers of same, the transit sheds for the detraining and shipping of horses, and so far as possible the avoidance of using good transit sheds for hospital personnel, offices, disinfecting places, and so on. At the same time don't allow the commercial authorities unduly to influence you into accepting inferior arrangements, and leaving the best, because it must be remembered that war needs the very best; the sooner the war is over the better will commerce be served.

Docks and repairing berths are also required, and these should also be carefully chosen to avoid, so far as possible,

interfering with commercial interests. The use of transit berths for repairing ships should be avoided if feasible, but this is a matter which I won't enlarge upon, beyond telling you that although a ship can be altered or repaired in the stream, very frequently the number of men and materials to be shipped to her daily will so delay the work, that it pays best to give up a good berth to her for a few days.

The railway and road approaches to the docks and the berths in the docks must be the best available and if necessary, improved with the least possible delay. The congestion of wagons, rail or otherwise must be avoided at all costs. This not only effects loading, but also the scarcity of wagons all over India. To avoid congestion in the docks there must be a good wagon-stocking yard close behind the docks, or up the line, where wagons under load can be held up when necessary.

What must be kept very clearly before one and never lost sight of when arranging the dock area is the maintenance of all the berths as transit berths only, with transit sheds or areas adjacent to them. No sheds or areas alongside the berths must be allowed to be utilised for storage, except a coaling berth and one or two personnel berths, but these too are really transit berths. All the same, even for personnel, it would be preferable to have shelters in two or three suitable areas if possible, just behind transit sheds to avoid the transit sheds being wrongly used.

We now come to the most important point to be considered in the primary arrangements, and that is a large easily accessible storage area with good covered sheds and protection for all the reserves of supplies, munitions stores, ordnance stores, clothing etc, that has to be collected at a port in readiness for despatch and to meet sudden emergent demands. Such an area or areas are tremendously important and must be capable of easy expansion. Here again open your mouth wide and go big. These areas need not be near the docks but the railway connections must be perfect.

The next thing to consider are the camps for troops concentration, and don't have these close to the docks, or even in



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the same town as the docks. Make the very best railway arrangements, for bringing in trains and animals, in the most salubrious spot, half a day's journey away if necessary, and if there are two lines then some on each *e.g.* Deolali and Kirkee North and South. One or two small local Depots are of course necessary for the accommodation of details or for men who cannot be embarked at the last moment for some reason.

We now come to the much vexed hospital arrangements and the embarkation, disembarkation, and railing away of the sick. A good berth must be set aside for this and for this purpose only, but it should not be a transit berth with valuable cranes and sheds. All that is necessary is good shelter and arrangements for sorting out and dealing with sick and wounded quickly and comfortably.

*Offices.*—Although I have not mentioned these before, their position, convenience and comfort are very important. There is no need however for them to be overlooking the water—proximity to ships is necessary for many reasons, but too great proximity is bad. The noise and stuffiness of docks is sometimes appalling. Get a big comfortable building close to the work, install the very best telephone system, and have plenty of cheap runabout motor cars. Don't use transit sheds for offices.

In the selection and arrangements of berths etc, at Bombay, when war broke out in 1914, we have many lessons of what not to do and the absolute necessity for up-to-date and complete plans for embarkation and storage arrangements, for small and large overseas expeditions, with selected skilled personnel, earmarked to immediate appointment. I must not criticise what happened then, but I will give you a few facts about the conditions that existed and what happened, and it is perfectly marvellous what was done considering the conditions.

It may be safely stated that no pre-arranged scheme was in existence or even contemplated to provide for the urgent despatch from Bombay or Karachi of such large numbers, for so many and distant theatres.

When war broke out, trade was flourishing and the docks were all filled to utmost capacity. The Alexandra Docks were

still largely under construction, and the railway sidings not ready to accommodate the traffic necessary. Roads were few and bad.

The preparation of transports for receipt of troops and animals, the accumulation and loading of large quantities of stores, presented great difficulties and called for exceptional organisation.

After due consideration the Alexandra Docks were selected for Military purposes, and the other docks left to trade. The operations became so enormous however, that parts of the other docks had to be constantly used. Steps were taken at once to prepare Alexandra Docks suitably. Railway sidings were arranged and connected to Port Trust Railway.

By the 13th August 1914 there were ten transports in Alexandra Docks fitting out, taking supplies etc. The docks generally were congested in every direction with materials, supplies, offices, accommodation for workmen etc, none of which should have ever been in the dock area at all. Transit sheds were being utilised for everything, except their real purpose.

The Embarkation Staff was entirely unacquainted with the management and operation of docks. They had for the most part never been inside any docks except when arriving or departing on leave.

They had to depend to a great extent on the docks staff, and in all future plans a proportion of the docks staff should always be given Military rank, at once, and placed on the staff of the Embarkation Commandant, who should himself have large experience of embarkation work and be kept entirely free from outside interference.

To appoint inexperienced officers in charge of operations, the carrying out of which under ordinary trade conditions is in the hands of the specially trained Port Trust Docks Personnel, is riding for a bad fall

Owing to transit sheds being used for storage, transports had to be shifted from berth to berth to load. As every shift must have involved at least an hour and a half's delay to work, it can be well understood how much valuable time was wasted, and the general efficiency effected. The question of bunkering presented

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The supply in Bombay was quite one that needs prevision, and

to be suddenly made for the large required by transports. As can be seen, the arrangements in the docks had to be hastily employed. This is a matter that requires consideration.

It realises that the existing facilities of the dock were not appreciated or utilised, and in general a mistake was in consequence obtained. In the event, the magnitude of the subsequent work has resulted in the adoption of hasty measures from which the extraordinary work followed prevented recovery or any improvement. We are still suffering from this and have to make do with the docks. This very much emphasises the need for working with a large, broad-minded

view for the future, Government and the greatest extent Port Trusts exist for trade, and so far as they can for Naval purposes.

The Naval Embarkation Commandant are

in the Regulations India, Chapter 5, which define what his sphere of action is. The Regulations 11-22 give a minute concept of the duties of the G. O. C. Part 2 Section 13, talks of the duties of the G. O. C. of a Base Commandant, and the arrangements to be made for the G. O. C. Both these paragraphs are under the E. C. It is to be noted that the local conditions and the arrangements for each Base must effect the E. C's duties, and that the G. O. C. overseas, or the arrangements.

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We now come to the organisation at Bombay as it was laid down by A. H. Q. last June with the subsequent developments and we find that it has drawn into its meshes very many enterprises that no one could, with the most vivid imagination, include in the true scope of embarkation work.

The E. C. Bombay not only controls the embarkation work in the Alexandra Docks, but also has all the following extraneous businesses to control:— Five Ambulance Trains that carry the sick and wounded, collected from Bombay Hospitals, to upcountry; Base Medical Store Depot: an A. D. S. & T. with a Contract Officer who purchases supplies locally. Connected with him are multitudinous stores depots, both at the Alexandra Docks and at the Grain and Cotton Depots at Mazagaon.

There is also a lime juice factory which supplies excellent lime juice. Then too there is an analytical chemical laboratory which tests the supplies tendered by Contractors. Also a ghi and cooking oil refinery and tinning section. Carpenters shops for making cases and mending boxes, and at the Grain Depot, Mazagaon, there is a Clothing Depot, hydraulic hay guillotines, and large reserve stocks of fuel, wood and supplies. Lubricating oil is also tested and decanted into drums and tins.

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description of sea transport required. This Naval Authority in India is the D. R. I. M.

I do not propose to deal with the movements to the ports which are made under Control nor the taking up of shipping by the D. R. I. M., but only with the selection of ports and arrangements in close connection with the ports selected, and the method of carrying on the work there.

One of the most important methods is the selection of and proper arrangements at the Port. The number of quays, wharves, docks etc. that will be required, the approaches to them, the transit sheds required, the accommodation for collecting and storing supplies etc, prior to despatch, the camps for troops concentrating, hospital arrangements, offices etc, coaling (bunkering).

The first point to consider therefore is the number of quays and wharves that will be required. This will depend on the tonnage that it is anticipated must be despatched each month, and the number of troops and animals to be embarked. Of course this is a most difficult thing to estimate, and so open your mouth wide when first taking over. It is far easier to give back wharves after a sound and workable scheme has been arranged for, than to add piecemeal to a meagre plan.

The selection of these wharves must depend very largely on the railway facilities and the approaches to them; the approaches and subsequent exits must be very carefully considered. Other points that must be very carefully gone into are the craneage, numbers and powers of same, the transit sheds for the detraining and shipping of horses, and so far as possible the avoidance of using good transit sheds for hospital personnel, offices, disinfecting places, and so on. At the same time don't allow the commercial authorities unduly to influence you into accepting inferior arrangements, and leaving the best, because it must be remembered that war needs the very best; the sooner the war is over the better will commerce be served.

Docks and repairing berths are also required, and these should also be carefully chosen to avoid, so far as possible,

interfering with commercial interests. The use of transit berths for repairing ships should be avoided if feasible, but this is a matter which I won't enlarge upon, beyond telling you that although a ship can be altered or repaired in the stream, very frequently the number of men and materials to be shipped to her daily will so delay the work, that it pays best to give up a good berth to her for a few days.

The railway and road approaches to the docks and the berths in the docks must be the best available and if necessary, improved with the least possible delay. The congestion of wagons, rail or otherwise must be avoided at all costs. This not only effects loading, but also the scarcity of wagons all over India. To avoid congestion in the docks there must be a good wagon-stocking yard close behind the docks, or up the line, where wagons under load can be held up when necessary.

What must be kept very clearly before one and never lost sight of when arranging the dock area is the maintenance of all the berths as transit berths only, with transit sheds or areas adjacent to them. No sheds or areas alongside the berths must be allowed to be utilised for storage, except a coaling berth and one or two personnel berths, but these too are really transit berths. All the same, even for personnel, it would be preferable to have shelters in two or three suitable areas if possible, just behind transit sheds to avoid the transit sheds being wrongly used.

We now come to the most important point to be considered in the primary arrangements, and that is a large easily accessible storage area with good covered sheds and protection for all the reserves of supplies, munitions stores, ordnance stores, clothing etc, that has to be collected at a port in readiness for despatch and to meet sudden emergent demands. Such an area or areas are tremendously important and must be capable of easy expansion. Here again open your mouth wide and go big. These areas need not be near the docks but the railway connections must be perfect.

The next thing to consider are the camps for troops concentration, and don't have these close to the docks, or even in

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the same town as the docks. Make the very best railway arrangements, for bringing in trains and animals, in the most salubrious spot, half a day's journey away if necessary, and if there are two lines then some on each e.g. Deolali and Kirkee North and South. One or two small local Depots are of course necessary for the accommodation of details or for men who cannot be embarked at the last moment for some reason.

We now come to the much vexed hospital arrangements and the embarkation, disembarkation, and railing away of the sick. A good berth must be set aside for this and for this purpose only, but it should not be a transit berth with valuable cranes and sheds. All that is necessary is good shelter and arrangements for sorting out and dealing with sick and wounded quickly and comfortably.

*Offices.*—Although I have not mentioned these before, their position, convenience and comfort are very important. There is no need however for them to be overlooking the water—proximity to ships is necessary for many reasons, but too great proximity is bad. The noise and stuffiness of docks is sometimes appalling. Get a big comfortable building close to the work, instal the very best telephone system, and have plenty of cheap runabout motor cars. Don't use transit sheds for offices.

In the selection and arrangements of berths etc, at Bombay, when war broke out in 1914, we have many lessons of what not to do and the absolute necessity for up-to-date and complete plans for embarkation and storage arrangements, for small and large overseas expeditions, with selected skilled personnel, earmarked to immediate appointment. I must not criticise what happened then, but I will give you a few facts about the conditions that existed and what happened, and it is perfectly marvellous what was done considering the conditions.

It may be safely stated that no pre-arranged scheme was in existence or even contemplated to provide for the urgent despatch from Bombay or Karachi of such large numbers, for so many and distant theatres.

When war broke out, trade was flourishing and the docks were all filled to utmost capacity. The Alexandra Docks were

still largely under construction, and the railway sidings not ready to accommodate the traffic necessary. Roads were few and bad.

The preparation of transports for receipt of troops and animals, the accumulation and loading of large quantities of stores, presented great difficulties and called for exceptional organisation.

After due consideration the Alexandra Docks were selected for Military purposes, and the other docks left to trade. The operations became so enormous however, that parts of the other docks had to be constantly used. Steps were taken at once to prepare Alexandra Docks suitably. Railway sidings were arranged and connected to Port Trust Railway.

By the 13th August 1914 there were ten transports in Alexandra Docks fitting out, taking supplies etc. The docks generally were congested in every direction with materials, supplies, offices, accommodation for workmen etc, none of which should have ever been in the dock area at all. Transit sheds were being utilised for everything, except their real purpose.

The Embarkation Staff was entirely unacquainted with the management and operation of docks. They had for the most part never been inside any docks except when arriving or departing on leave.

They had to depend to a great extent on the docks staff, and in all future plans a proportion of the docks staff should always be given Military rank, at once, and placed on the staff of the Embarkation Commandant, who should himself have large experience of embarkation work and be kept entirely free from outside interference.

To appoint inexperienced officers in charge of operations, the carrying out of which under ordinary trade conditions is in the hands of the specially trained Port Trust Docks Personnel, is riding for a bad fall.

Owing to transit sheds being used for storage, transports had to be shifted from berth to berth to load. As every shift must have involved at least an hour and a half's delay to work, it can be well understood how much valuable time was wasted, and the general efficiency effected. The question of bunkering presented



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considerable difficulties and the supply in Bombay was quite inadequate. This question is one that needs prevision, and special arrangements cut and dried.

Special arrangement had to be suddenly made for the large supply of drinking water required by transports. As can be easily realised, special sanitary arrangements in the docks had to be made and extensive staffs employed. This is a matter that also needs previous careful consideration.

On review, one fully realises that the existing facilities of the Port were not properly appreciated or utilised, and in general a low degree of efficiency was in consequence obtained. In the beginning it cannot be doubted the magnitude of the subsequent operations was not realised; this resulted in the adoption of hasty and ill-considered procedure, from which the extraordinary congestion and urgency that followed prevented recovery or any remodelling. Even now we are still suffering from this and have transit sheds misused in the docks. This very much emphasises what I have said about commencing with a large, broad-minded easily expandable scheme.

In the formulation of a scheme for the future, Government should calculate to utilise to the greatest extent Port Trust organisations as they actually exist for trade, and so far as they can be applied to Military and Naval purposes.

The duties and powers of an Embarkation Commandant are nowhere clearly defined.

Mobilisation and concentration Regs. India, Chapter 5, Paras 200—209, lay down roughly what his sphere of action covers. Kings Regulations 1488 and 1522 give a minute conception of his responsibilities and F. S. R. Part 2 Section 13, talks of M. L. O's appointed to the Headquarters of a Base Commandant, whilst Section 25 (6) mentions the arrangements to be made under the direction of the I G. C. Both these paragraphs include the duties that are carried out by the E. C.

The fact of the matter is that the local conditions and the magnitude of the operations at each Base must effect the E. C's powers and should be laid down by the G. O. C. overseas, or the Q. M. G. India, to suit requirements.

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All these are so closely connected with embarkation and enable the E. C. to control congestion in the docks, whilst being ready to meet sudden urgent demands or fill up sudden windfalls of tonnage, that I am sure it is sound to keep them under the E. C. and not draw another controlling factor into the already complicated mechanism.

In examining the large staff that has been allotted for embarkation work at Bombay, all the above points must be remembered, and one must not say that it appears an abnormally large staff for an E. C. - it is - but it is not the staff of an E. C. at all, but the combined staffs of several administrations combined under the E. C.

The work of Embarkation is divided between the following branches:.

- Marine Transport.
- Medical.
- Personnel.
- Supplies.
- Stores.
- M. F. O.
- E. F. C.
- Orduance.
- Clothing.
- Aeronautics.
- Mechanical Transport.
- Leave Committee.

### **MARINE OR NAVAL TRANSPORT.**

The division of duties between the Navy (or Royal Indian Marine) and the Army are clearly laid down in Chap: III, Sec. 42, Page 68 of the Field Service Regulations, Part I, Operations 1909 (Reprint 1914).

It will be seen from these regulations that the entire operations of landing and embarking troops and loading stores, either Government or Mercantile, between a vessel to and from a beach, will be controlled by the Navy, who provide all boats, lighters, tugs etc.

It is seldom, however, that circumstances admit of the Navy providing all personnel contemplated under the distribution of responsibilities indicated in the Regulations, and so it comes about that the only way of achieving successful transport work is by complete co-operation between Naval and Military Authorities, and, to obtain success, it must be understood that each Service is working for a common object and must render the other all the assistance that lies in its power.

The complicated duties of embarking and landing troops and stores can only be successfully carried out by a perfect harmony and co-operation between the two Services.

Transport Work, under modern and much more highly organised conditions than in any previous war, has necessitated something more than a passing interest by the Marine or Naval Transport Staff in the military side of embarkation work, and a corresponding degree of interest by the Military Staff Officers in the comings and goings of ships and in their capabilities and peculiarities.

Broadly speaking, however, the duties of a Marine or Naval Transport Officer and his staff may be defined as follows:— Responsibility for the taking up of suitable shipping for the requirements of the Army; fitting and efficiency of vessels and their personnel; the fixing of sailing dates, to meet so far as may be possible military necessities; the direction of all movements of vessels in or out of dock and at sea; the issue of sailing orders; the allocation of space in store-ships to various departments, having regard to the suitability of each vessel for particular classes of cargo and with regard to the relative urgency of cargo; and the loading of vessels so as to ensure the utmost possible economy of tonnage and the safe transport of supplies without damage or loss.

In addition to the above executive duties, there are various administrative responsibilities, which may be briefly summed up, as the chartering of vessels under Charter Parties specially drawn up to satisfy current local conditions; the fixing of rates of hire; the purchase and issue of bunker coal; the employment

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and payment of all stevedore labour required on board ships for loading or discharge, and the safeguarding, so far as is compatible with military necessities, of normal shipping requirements for particular localities.

It is impossible to emphasise too strongly the importance of good relations and co-operation between the Military and Marine or Naval Transport Staffs. As before stated, without a full measure of harmony and co-operation, chaos is inevitable and the ideal of efficiency cannot be achieved.

Almost equally important is the necessity for Marine or Naval Transport Officers to command the confidence and respect of the widely varied types of men who are to be found as Masters and Officers of merchant vessels. Of these a large proportion consists of highly capable and helpful men, as the present war has fully proved. But, as in every other profession, there is a proportion of passive and active obstructionists and men who are, generally speaking, difficile. To obtain the best from such men and their ships, with but nebulous disciplinary powers at his command, constitutes one of the most searching tests of a successful Marine or Naval Transport Officer.

**PERSONNEL.**

This question of personnel and animals is a very large one and gives more trouble than all the rest put together. It has to be divided between an,

A. Q. M. G.

D. A. Q. M. G.

E. S. O. with several A. E. S. O's.

D. A. D. R. T. with several R. T. O's

The A. Q. M. G. (for trooping) is in the first instance the Personal Staff Officer of the Embarkation Commandant, and as such should relieve the latter of all minor matters which are covered by regulations and do not require special orders. He should therefore be well acquainted with all regulations dealing with the movement of troops by sea or rail, and only refer points which, owing to war conditions, are doubtful.

He should see all officers who wish to have an interview with the Embarkation Commandant and report the circumstances of each case. It is not uncommon for officers to demand an interview with the Embarkation Commandant in regard to matters that could easily be dealt with by a junior officer, and these can be sent to the right department.

One of the most important points for him to watch is checking a tendency to pass responsibility for taking action from one office to another. It is practically impossible at times to lay down where the responsibility of one officer ends and that of another begins, and it is far better to carry out work that technically belongs to another department than to leave it to chance. The instinct to do one's own work only is a most natural one, but all work on embarkation dovetails in so closely with many other departments that, unless an officer is assured that the work is being done by someone else, he should see it through and make a subsequent reference.

His duties can be summarised as follows:—

(1). To control the whole of the Embarkation Staff on all matters referring to trooping.

(2). To satisfy himself that all orders issued by his staff fulfil the requirements of the movements.

(3). To keep in close touch with the staff of the R. I. M. in regard to trooping programmes and to make such suggestions as will ensure consideration for troops to be moved.

(4). In the absence of the Embarkation Commandant, to accompany the A. E. C. at his inspection of all transports that may leave the Port and rectify any deficiencies, and see that the transport goes away with everyone thoroughly satisfied.

(5). To supervise the D. A. D. R. T. and the despatch of troop trains.

He should not however confine himself entirely to relations with officers who are working in the docks. He must go further afield and study all those with whom he may have any dealings. Most important of these are the staff of the G. O. C. Brigade, and the various Camp Commandants etc. in the Brigade.

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Although the junior officers on the Embarkation Staff deal directly with the Brigade in small matters, it is most important that the A. Q. M. G. himself should be on the best terms with all the Staff Officers concerned.

In addition to Military departments, he should be also in close co-operation with the Police, Customs, Port Trust, Railway, Firms, Government and other Departments. Work in connection with embarkation is of such an embracing character, that it is no exaggeration to say that a knowledge of everyone in Bombay is of the greatest value, as references come from every quarter.

D. A. Q. M. G. is a most important officer and must be very tactful and level headed. It is he who has to interview ladies and angry officers, requiring mail passages, neither of whom usually understands explanations, and both of whom frequently think we are out to deceive them, and that in any case they are serving an unjust and ungenerous Government.

They frequently complicate matters by their own fractious stupidity, and it is up to the poor D. A. Q. M. G. to save them from themselves.

Amongst the D. A. Q. M. G.'s duties is the distribution of post and telegrams to the various sections of the Embarkation Staff, including issue of all information regarding sailings and arrivals.

He decides all questions relative to grant of private steamer passages for officers and families, and signs the requisitions and is financially responsible for same. The chief difficulty with these is the lack of knowledge of regulations, (Vol 10) shown by many staff officers up country. In consequence every case has to be very carefully examined, otherwise mistakes would certainly occur very frequently. Many people seem to think that they have only to wire or write to Embarkation for passages and that there the matter ends as far as they are concerned, as they are much surprised if Embarkation refuses to "please arrange". There is also a popular fallacy among ladies that it is unnecessary to worry about passports, until they arrive at the docks to pay their messing charges a few hours before their ship sails.

The D. A. Q. M. G. is in charge of all the clerks in the office and the troop ship staff, as far as pay and discipline is concerned.

He also deals with detention allowance claims; one of the chief difficulties with this is that officers often delay putting in their claims until months after; and also with all advances of pay which cannot be dealt with by the Treasure Chest Officer without sanction of the Embarkation Commandant. He also has to decide the amount according to circumstances, on behalf of the Embarkation Commandant.

Not the least part of the D. A. Q. M. G.'s work is dealing with all applications by officers arriving in Bombay, for Joining Leave.

*Embarkation Staff Officer.*

The E. S. O. and his A. E. S. O's have to be men of tact, courtesy, sympathy, and above all, strict disciplinarians, whether in their dealings with officers or men, and it is no use C. O's. or staffs, thinking that just anyone can do this work. It is a most excellent training for any young officer who wishes to become a staff officer, and I, for one, would always be glad to see any of my subalterns do a six months course of this.

Above all other things one has to learn and remember that one is there for others and for others only, and not for one's own glorification.

The duties are Embarkation and Disembarkation of personnel and Animals, posting of officers arriving from overseas, distribution of comforts, complimentary reception of returned units, arranging hotel accommodation for officers and money changing.

The main point to remember, however, is that the Embarkation Staff have always to be prepared for constant sudden alterations of their programmes, and to meet them in a cheerful and capable spirit. Alterations are due to many things:—Ships not being ready to advertised dates, wind, tide, breakdowns, bad coal, failure of information, or demands from the front, and consequent changes by Army Headquarters. There are also many minor worries which it is the duty of Divisional and Brigade



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Staffs to do their best to eliminate, e.g. Depots failing to wire strength, number of chargers, weight of baggage, or sending incorrect weight, and so taking up valuable cargo space, not submitting nominal rolls in sextuplicate, or submitting late and inaccurate rolls; over allotting, equipping and rationing of drafts arriving insufficiently equipped, or not rationed for day of embarkation.

*D. A. D. R. T.* We now come to the D. A. D. R. T. who, according to instructions from Army Headquarters, works both for the Embarkation Commandant, and the small movements connected with the G. O. C. Bombay Brigade. This means that he has two masters, which is not desirable, but as a matter of fact he works entirely under the Embarkation Commandant, has his entire office at the docks, and demands from the Brigade come through that office.

In addition to the R. T. Staff required for work at Bombay, officers are sent there to be instructed in R. T. work for Frontier operations, and also for overseas requirements. As I consider it very essential for an R. T. O. to have a wide experience in his business, I do not confine them only to dealing with men and animals, but send them also to learn to handle stores and supplies, both into trains at Mazagaon and on to ships in the docks.

*The Work of the D. A. D. R. T. is:—*

- (a). To be a medium between the Military and Railway Officials.
- (b). To mark all arrangements for the latter regarding despatch and reception of troops in Bombay.
- (c). To make all arrangements regarding rationing, accommodation, transport, and general comfort of the troops.
- (d). To supervise generally the work of the Railway Transport Staff.

*The Work of the R. T. O's is:—*

- (a). To meet troops arriving by rail in Bombay.
- (b). Despatch troops by rail who have arrived from overseas.

The first involves the actual meeting of the trains, the checking of numbers arrived, examination of carriages occupied, recovering of damages, if any, receipt of the reports that no looting has occurred en route, and that all refreshment room bills have been paid, the arrangements of transport and conducting of details to either docks for direct embarkation, or to camps, Bombay, pending embarkation.

The chief difficulties in this work are the recovery of train damages and investigation of cases reported of looting.

In the former case, carriages at starting stations are frequently not taken over by officers commanding the draft occupying the carriages, or not handed over by the railway authorities, or are taken over slackly by the officer commanding the draft. This means that at the destination station where there is a more accurate carriage examination, damages are found which previously existed but were not noted. This causes argument, delay and correspondence, and sometimes hardship on the details occupying the carriages who were not responsible for the damages but have to pay.

In the case of so-called looting, this occurs most frequently with Indians. They crowd round a sweetmeat vendor, and when the train starts, they all rush to it without paying. This can be avoided if the officer commanding drafts is strict and places sentries, picquets, etc, at stopping stations.

Both train damages and looting cause a great deal of correspondence which could be avoided, if the officers commanding drafts were stricter in carrying out instructions laid down in Special Indian Army Order, dated 1st May 1917.

R. T. O.'s work regarding the despatch of troops by rail from Bombay commences from the time they land from a transport. Railway stock provided is examined and checked, troops are taken over from the Embarkation Staff Officer from the moment they land. They are conducted to the Embarkation Supply and Ordnance where blankets and necessaries are issued, then to the issue of comforts (i. e. towels, soap, cigarettes etc. supplied by the Women's Branch). After this they are conducted to the

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trains, and entrained, or to camps, if not proceeding by rail at once.

Before troops are despatched, the R. T. O's have to ensure that all arrangements have been made for the journey, especially accommodation, rations, medical attendance, itinerary, time table, troop tickets, damages, hot water for tea, hot weather arrangements.

The only difficulty which may occur is the unexpected arrival of troops in a transport, due to the mutilation of cables. This may involve alteration in train arrangements.

The work of the N. C. O's and ranks, attached to the Railway Transport Establishment, is generally to assist the R. T. O's in the above work, and answer for them in their absence.

British troops are normally despatched in Military Cars, failing that, in second class accommodation, and only in exceptional cases in third class.

The Military Car takes sixty-six (forty-four on the North Western Railway in summer) men lying down; is a corridor car, and has eleven compartments, each of which has a table in the centre.

Whenever possible a Kitchen Car is attached to every troop train with British troops. This Car is corridor, and is fitted with a "Haddick Cooker", capable of cooking for six hundred men with a staff of two cooks. This has enormous advantages, in that the supply of meals to troops is quite independent of halts and time of running of the train, and makes the train absolutely self-contained as regards meals for the men.

A new combined Officers, Warrant Officers, and Hospital corridor carriage, has also just been built by the G. I. P. Railway.

The Kitchen Cars are now fitted with crockery etc. to feed twelve officers. This enables officers to have their meals on the trains and be independent of Refreshment Rooms. In addition to the time saved in halts for officers meals, the cost is very much less, because officers' are included in the British rations and only certain extras purchased. The cost of meals for the two day run to Delhi on a troop train, from Refreshment Rooms, was about

Rs. 10 per day. From the Kitchen Car it is Rs. 3-8-0 for the trip.

As stated above the actual arrangements with the Railway are made by the D. A. D. R. T. He receives from the Embarkation details of troops expected, submits them with destinations to the Traffic Manager of the Railway concerned, and arranges with him, usually by personal interview (confirmed in writing) the details of despatch.

The D. A. D. R. T. arranges with the Brigade Supply Officer for the supply of rations, and with the A. D. M. S. (Distribution) for Medical attendance.

A Troop Passenger Train is now run between Bombay and Delhi and vice versa, twice a week. The object of this is to restrict the travelling of troops on this route to only two days of the week, and thus avoid the overcrowding of mail and passenger trains, which in these days of reduced stock, and few trains running, has become a serious thing.

This train has accommodation for both British and Indian troops, with a Kitchen Car, and besides carrying the troop traffic to and from Bombay and Delhi, carries out any internal moves passing over that line, or portions of that line i. e. details from Bangalore to Lucknow travel by the Troop passenger from Manmad to Jhansi.

The entire working of this train from Bombay to Delhi, including troops picked up and detrained en route is under the control of the D. A. D. R. T. The return journey is under the R. T. O. Delhi.

The permanent staff of the train is one Train Conducting Sergeant Major, and two Sergeant cooks, but it has been strongly recommended that an officer should be permanently detailed to conduct.

It is now suggested that, if numbers justify, connecting Troop Passengers should be run from Delhi to North India and from Bombay to South India.

## ***Embarkation.***

### ***Supply Work at Bombay.***

All Supply and Transport work is dealt with by the A. D. S. & T. and his assistant officers. Their work may be briefly outlined as follows:—

The A. D. S. & T. and his Contract Officer, under orders of Army Headquarters, arrange for the supply of food stuffs and the many assorted articles that Corps is called upon to supply to meet the demands of the overseas forces. These have varied from cooking pots to ladies' garments.

These supplies are received, examined, and passed into the Store Depot which is worked by the Store Officer. They are then packed as required in 80 lbs packages for mule transport or in 50 lbs waterproof packages for coolie transport.

An outdoor supervisor goes from section to section, from berth to berth etc, and satisfies himself that the packing is sufficiently strong for overseas purposes, and reports at once any cases where action is called for. He generally assists the A. D. S. & T.

There are an Embarkation Supply Officer with Assistant S. & T. Shipping Officers, whose duty it is to indicate what tonnage has been allotted to any particular ship, what description of articles is required, and when and where they are required for loading. On them devolves the duty of shipping these stores away.

The interior working of the S. & T. Corps has to be known before one can recognise what that Corps has to do in a big base. I will try and indicate briefly the procedure.

The A. D. S. & T. receives orders that Force "A" requires N tons of food stuffs during April. He arranges for the supply by contract to be delivered from about 20th March to the 10th April. He arranges for its packing, be it boxes or bags. Supplies come in daily in a regular flow, they are passed in bagged or cased as may be, and a daily balance of all stores in stock is submitted by sections to the Store Officer. Twice a week a statement is compiled from these balances, showing in dead weight tons

- (1) The stores ready for immediate shipment,
- (2) The stores

expected to be ready in a weeks time, and (3) The stores expected to be ready in a fortnight's time. Copies of these statements are given to the E. C., (in duplicate, one for transmission to the Q. M. G.) and to the P. M. T. O. As ships are indicated to arrive the P. M. T. O. informs the Embarkation Supply Officer that he will load at No. 4 berth. He requires a thousand tons bag stores, 500 tons cased stores for shipment. The E. S. O. has been informed of the urgency of the demands for any particular item, and he discusses with the P. M. T. O. what he proposes to ship, etc. When this is decided the E. S. O. issues to the Store Officer an "Engagement List." This "Engagement List" informs the Store Officer what has to be shipped, and it devolves on the latter officers and his assistant officers to see that the stores as indicated are at the indicated berth at the time given, so as not to waste any time in loading, once the hatches are off the ship. I have not time to go into this here but when described it sounds very simple. It all means however the closest co-ordination and co-operation between the Marine and the S. & T. Offices. It means continuous night work at times in transporting stores to the indicated berth, it always means night work once a ship starts loading. It is not so simple as it sounds, for the Marine Authorities compute that N Cubic tons will require M tons bagged cargo, stores, and O tons of case stores. At times there is space still to be filled in the hold which they could not foresee or which became available owing to one or the other services not being able fully to meet the tonnage allotted to them. This surplus is found at a very short notice by the S. & T. C. as that service always has more stores than indicated tonnage in sight.

The brief outline I have given of the S. & T. work indicates merely how the finished article ready for shipment is dealt with, and the majority of officers do not know the heavy spade work involved before the stores are ready. The A. D. S. & T. is personally responsible to the E. C. for the following:—

- (1). The economical placing of orders for the supply of the article.
- (2). For its quality, and that he gets it in time to meet shipment, properly marked and packed etc.

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(3). That his labour supply is ample and economical.

(4). That railway wagons are unloaded as speedily as possible.

It must be remembered that Bombay produces no food stuffs nor fodder. It all has to be rail-borne from up-country to Bombay.

(5). For the best utilisation of the limited storage space he has.

(6). For the correct accounting for the many thousand of tons of foodstuffs he holds.

(7). He has a manufacturing section, making up cases and casks. He makes lime juice in Bombay. He has shearing plant, hydraulic driven, to cut large bales of fodder into smaller ones. He issues clothing etc. to all troops arriving. He equips troops as may be necessary before they proceed overseas. He has to be au fait with all he controls, and has to answer any questions that may be put to him about S. & T. matters.

(8). He has to ascertain from the E. S. O. the number of troops and animals proceeding on each transport. How many of the troops are cooking or non-cooking, and he has to put these rations on the ship as voyage rations, as well as cooking pots etc. etc.

**Ordnance.**

This Establishment is formed for dealing with the despatch of Ordnance Stores to overseas forces; the receipt of Ordnance Stores from these forces, and the transhipment of Ordnance Stores from England or from one of these forces to another.

*Procedure. Supply of Stores.* One copy of the Demand from an overseas force is received from Director of Ordnance Stores. This form also shows the source of supply and on receipt is filed in a guard file.

The Arsenal of Supply forwards to this Depot, in case of the Mesopotamian Field Force, five copies of the vouchers for the stores and the railway receipt. In the case of other forces, one copy only of the voucher with the railway receipt.

On receipt of the stores, they are checked against the vouchers for number of packages only, and if correct pegged up on the Issue Order Form and entered in the Tonnage certificate.

Each Force has a distinguishing O on the packages,

Blue,	Basra.
Green,	Egypt,
Yellow,	East Africa..
Black,	Aden.

When a few stores accumulate, a requisition for shipment is put forward on the P. M. T. O., and orders for shipment being received, the stores are moved to the transit shed noted, and made over by number of packages to the Shed Manager of the transit shed, and a receipt obtained for them.

A touch is kept with the Shed Manager to see how shipment is proceeding, and when word is received that all are shipped, the Demand Form, two copies of the voucher for "D" and one copy of the voucher for other Forces, is stamped with the name of the vessel and date of sailing. This is also entered on the tonnage certificate.

Voucher for "D", and one copy of the tonnage certificate are then placed in a box, sealed, and addressed C. O. O. Basra, and handed over to the Chief Officers of the vessel, together with one copy of the T. C. for Port Administration, a receipt being obtained.

One copy of the tonnage certificate, with any notes necessary, is also forwarded by post to C. O. O. Base, Basra, and a telegram sent to "L. of C." Basra, and to Army Headquarters, Baghdad, for information.

One copy of the vouchers endorsed with name of vessel is then sent to the D. O. S. from which he pegs up issue on his orders of supply.

To other forces the procedure is the same, except that vouchers are forwarded direct to the forces by the Supplying Arsenal, and the one copy received here is endorsed with the name of the vessel and the date of sailing and sent to the D. O. S.

*Receipt of Stores from Overseas.* Intimations of such arrivals are obtained from telegrams, and from the bills of lading or convoy notes carried by the ships.



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Although the junior officers on the Embarkation Staff deal directly with the Brigade in small matters, it is most important that the A. Q. M. G. himself should be on the best terms with all the Staff Officers concerned.

In addition to Military departments, he should be also in close co-operation with the Police, Customs, Port Trust, Railway, Firms, Government and other Departments. Work in connection with embarkation is of such an embracing character, that it is no exaggeration to say that a knowledge of everyone in Bombay is of the greatest value, as references come from every quarter.

D. A. Q. M. G. is a most important officer and must be very tactful and level headed. It is he who has to interview ladies and angry officers, requiring mail passages, neither of whom usually understands explanations, and both of whom frequently think we are out to deceive them, and that in any case they are serving an unjust and ungenerous Government.

They frequently complicate matters by their own fractious stupidity, and it is up to the poor D. A. Q. M. G. to save them from themselves.

Amongst the D. A. Q. M. G.'s duties is the distribution of post and telegrams to the various sections of the Embarkation Staff, including issue of all information regarding sailings and arrivals.

He decides all questions relative to grant of private steamer passages for officers and families, and signs the requisitions and is financially responsible for same. The chief difficulty with these is the lack of knowledge of regulations, (Vol 10) shown by many staff officers up country. In consequence every case has to be very carefully examined, otherwise mistakes would certainly occur very frequently. Many people seem to think that they have only to wire or write to Embarkation for passages and that there the matter ends as far as they are concerned, as they are much surprised if Embarkation refuses to "please arrange". There is also a popular fallacy among ladies that it is unnecessary to worry about passports, until they arrive at the docks to pay their messing charges a few hours before their ship sails.

The D. A. Q. M. G. is in charge of all the clerks in the office and the troop ship staff, as far as pay and discipline is concerned.

He also deals with detention allowance claims; one of the chief difficulties with this is that officers often delay putting in their claims until months after; and also with all advances of pay which cannot be dealt with by the Treasure Chest Officer without sanction of the Embarkation Commandant. He also has to decide the amount according to circumstances, on behalf of the Embarkation Commandant.

Not the least part of the D. A. Q. M. G.'s work is dealing with all applications by officers arriving in Bombay, for Joining Leave.

*Embarkation Staff Officer.*

The E. S. O. and his A. E. S. O's have to be men of tact, courtesy, sympathy, and above all, strict disciplinarians, whether in their dealings with officers or men, and it is no use C. O's. or staffs, thinking that just anyone can do this work. It is a most excellent training for any young officer who wishes to become a staff officer, and I, for one, would always be glad to see any of my subalterns do a six months course of this.

Above all other things one has to learn and remember that one is there for others and for others only, and not for one's own glorification.

The duties are Embarkation and Disembarkation of personnel and Animals, posting of officers arriving from overseas, distribution of comforts, complimentary reception of returned units, arranging hotel accommodation for officers and money changing.

The main point to remember, however, is that the Embarkation Staff have always to be prepared for constant sudden alterations of their programmes, and to meet them in a cheerful and capable spirit. Alterations are due to many things:—Ships not being ready to advertised dates, wind, tide, breakdowns, bad coal, failure of information, or demands from the front, and consequent changes by Army Headquarters. There are also many minor worries which it is the duty of Divisional and Brigade

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Staffs to do their best to eliminate, e.g. Depots failing to wire strength, number of chargers, weight of baggage, or sending incorrect weight, and so taking up valuable cargo space, not submitting nominal rolls in sextuplicate, or submitting late and inaccurate rolls; over allotting, equipping and rationing of drafts arriving insufficiently equipped, or not rationed for day of embarkation.

*D. A. D. R. T.* We now come to the D. A. D. R. T. who, according to instructions from Army Headquarters, works both for the Embarkation Commandant, and the small movements connected with the G. O. C. Bombay Brigade. This means that he has two masters, which is not desirable, but as a matter of fact he works entirely under the Embarkation Commandant, has his entire office at the docks, and demands from the Brigade come through that office.

In addition to the R. T. Staff required for work at Bombay, officers are sent there to be instructed in R. T. work for Frontier operations, and also for overseas requirements. As I consider it very essential for an R. T. O. to have a wide experience in his business, I do not confine them only to dealing with men and animals, but send them also to learn to handle stores and supplies, both into trains at Mazagaon and on to ships in the docks.

*The Work of the D. A. D. R. T. is:—*

- (a). To be a medium between the Military and Railway Officials.
- (b). To mark all arrangements for the latter regarding despatch and reception of troops in Bombay.
- (c). To make all arrangements regarding rationing, accommodation, transport, and general comfort of the troops.
- (d). To supervise generally the work of the Railway Transport Staff.

*The Work of the R. T. O's is:—*

- (a). To meet troops arriving by rail in Bombay.
- (b). Despatch troops by rail who have arrived from overseas.

The first involves the actual meeting of the trains, the checking of numbers arrived, examination of carriages occupied, recovering of damages, if any, receipt of the reports that no looting has occurred en route, and that all refreshment room bills have been paid, the arrangements of transport and conducting of details to either docks for direct embarkation, or to camps, Bombay, pending embarkation.

The chief difficulties in this work are the recovery of train damages and investigation of cases reported of looting.

In the former case, carriages at starting stations are frequently not taken over by officers commanding the draft occupying the carriages, or not handed over by the railway authorities, or are taken over slackly by the officer commanding the draft. This means that at the destination station where there is a more accurate carriage examination, damages are found which previously existed but were not noted. This causes argument, delay and correspondence, and sometimes hardship on the details occupying the carriages who were not responsible for the damages but have to pay.

In the case of so-called looting, this occurs most frequently with Indians. They crowd round a sweetmeat vendor, and when the train starts, they all rush to it without paying. This can be avoided if the officer commanding drafts is strict and places sentries, picquets, etc, at stopping stations.

Both train damages and looting cause a great deal of correspondence which could be avoided, if the officers commanding drafts were stricter in carrying out instructions laid down in Special Indian Army Order, dated 1st May 1917.

R. T. O.'s work regarding the despatch of troops by rail from Bombay commences from the time they land from a transport. Railway stock provided is examined and checked, troops are taken over from the Embarkation Staff Officer from the moment they land. They are conducted to the Embarkation Supply and Ordnance where blankets and necessaries are issued, then to the issue of comforts (i. e. towels, soap, cigarettes etc. supplied by the Women's Branch) After this they are conducted to the

trains, and entrained, or to camps, if not proceeding by rail at once.

Before troops are despatched, the R. T. O's have to ensure that all arrangements have been made for the journey, especially accommodation, rations, medical attendance, itinerary, time table, troop tickets, damages, hot water for tea, hot weather arrangements.

The only difficulty which may occur is the unexpected arrival of troops in a transport, due to the mutilation of cables. This may involve alteration in train arrangements.

The work of the N. C. O's and ranks, attached to the Railway Transport Establishment, is generally to assist the R. T. O's in the above work, and answer for them in their absence.

British troops are normally despatched in Military Cars, failing that, in second class accommodation, and only in exceptional cases in third class.

The Military Car takes sixty-six (forty-four on the North Western Railway in summer) men lying down; is a corridor car, and has eleven compartments, each of which has a table in the centre.

Whenever possible a Kitchen Car is attached to every troop train with British troops. This Car is corridor, and is fitted with a "Haddick Cooker", capable of cooking for six hundred men with a staff of two cooks. This has enormous advantages, in that the supply of meals to troops is quite independent of halts and time of running of the train, and makes the train absolutely self-contained as regards meals for the men.

A new combined Officers, Warrant Officers, and Hospital corridor carriage, has also just been built by the G. I. P. Railway.

The Kitchen Cars are now fitted with crockery etc. to feed twelve officers. This enables officers to have their meals on the trains and be independent of Refreshment Rooms. In addition to the time saved in halts for officers meals, the cost is very much less, because officers' are included in the British rations and only certain extras purchased. The cost of meals for the two day run to Delhi on a troop train, from Refreshment Rooms, was about

Rs. 10 per day. From the Kitchen Car it is Rs. 3-8-0 for the trip.

As stated above the actual arrangements with the Railway are made by the D. A. D. R. T. He receives from the Embarkation details of troops expected, submits them with destinations to the Traffic Manager of the Railway concerned, and arranges with him, usually by personal interview (confirmed in writing) the details of despatch.

The D. A. D. R. T. arranges with the Brigade Supply Officer for the supply of rations, and with the A. D. M. S. (Distribution) for Medical attendance.

A Troop Passenger Train is now run between Bombay and Delhi and vice versa, twice a week. The object of this is to restrict the travelling of troops on this route to only two days of the week, and thus avoid the overcrowding of mail and passenger trains, which in these days of reduced stock, and few trains running, has become a serious thing.

This train has accommodation for both British and Indian troops, with a Kitchen Car, and besides carrying the troop traffic to and from Bombay and Delhi, carries out any internal moves passing over that line, or portions of that line i. e. details from Bangalore to Lucknow travel by the Troop passenger from Manmad to Jhansi.

The entire working of this train from Bombay to Delhi, including troops picked up and detrained en route is under the control of the D. A. D. R. T. The return journey is under the R. T. O. Delhi.

The permanent staff of the train is one Train Conducting Sergeant Major, and two Sergeant cooks, but it has been strongly recommended that an officer should be permanently detailed to conduct.

It is now suggested that, if numbers justify, connecting Troop Passengers should be run from Delhi to North India and from Bombay to South India.

**Embarkation.***Supply Work at Bombay.*

All Supply and Transport work is dealt with by the A. D. S. & T. and his assistant officers. Their work may be briefly outlined as follows:—

The A. D. S. & T. and his Contract Officer, under orders of Army Headquarters, arrange for the supply of food stuffs and the many assorted articles that Corps is called upon to supply to meet the demands of the overseas forces. These have varied from cooking pots to ladies' garments.

These supplies are received, examined, and passed into the Store Depot which is worked by the Store Officer. They are then packed as required in 80 lbs packages for mule transport or in 50 lbs waterproof packages for coolie transport.

An outdoor supervisor goes from section to section, from berth to berth etc, and satisfies himself that the packing is sufficiently strong for overseas purposes, and reports at once any cases where action is called for. He generally assists the A. D. S. & T.

There are an Embarkation Supply Officer with Assistant S. & T. Shipping Officers, whose duty it is to indicate what tonnage has been allotted to any particular ship, what description of articles is required, and when and where they are required for loading. On them devolves the duty of shipping these stores away.

The interior working of the S. & T. Corps has to be known before one can recognise what that Corps has to do in a big base. I will try and indicate briefly the procedure.

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- (1) The stores ready for immediate shipment,
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expected to be ready in a weeks time, and (3) The stores expected to be ready in a fortnight's time. Copies of these statements are given to the E. C., (in duplicate, one for transmission to the Q. M. G.) and to the P. M. T. O. As ships are indicated to arrive the P. M. T. O. informs the Embarkation Supply Officer that he will load at No. 4 berth. He requires a thousand tons bag stores, 500 tons cased stores for shipment. The E. S. O. has been informed of the urgency of the demands for any particular item, and he discusses with the P. M. T. O. what he proposes to ship, etc. When this is decided the E. S. O. issues to the Store Officer an "Engagement List." This "Engagement List" informs the Store Officer what has to be shipped, and it devolves on the latter officers and his assistant officers to see that the stores as indicated are at the indicated berth at the time given, so as not to waste any time in loading, once the hatches are off the ship. I have not time to go into this here but when described it sounds very simple. It all means however the closest co-ordination and co-operation between the Marine and the S. & T. Offices. It means continuous night work at times in transporting stores to the indicated berth, it always means night work once a ship starts loading. It is not so simple as it sounds, for the Marine Authorities compute that N Cubic tons will require M tons bagged cargo, stores, and O tons of case stores. At times there is space still to be filled in the hold which they could not foresee or which became available owing to one or the other services not being able fully to meet the tonnage allotted to them. This surplus is found at a very short notice by the S. & T. C. as that service always has more stores than indicated tonnage in sight.

The brief outline I have given of the S. & T. work indicates merely how the finished article ready for shipment is dealt with, and the majority of officers do not know the heavy spade work involved before the stores are ready. The A. D. S. & T. is personally responsible to the E. C. for the following:—

(1). The economical placing of orders for the supply of the article.

(2). For its quality, and that he gets it in time to meet shipment, properly marked and packed etc.



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(3). That his labour supply is ample and economical.

(4). That railway wagons are unloaded as speedily as possible.

It must be remembered that Bombay produces no food stuffs nor fodder. It all has to be rail-borne from up-country to Bombay.

(5). For the best utilisation of the limited storage space he has.

(6). For the correct accounting for the many thousand of tons of foodstuffs he holds.

(7). He has a manufacturing section, making up cases and casks. He makes lime juice in Bombay. He has shearing plant, hydraulic driven, to cut large bales of fodder into smaller ones. He issues clothing etc. to all troops arriving. He equips troops as may be necessary before they proceed overseas. He has to be au fait with all he controls, and has to answer any questions that may be put to him about S. & T. matters.

(8). He has to ascertain from the E. S. O. the number of troops and animals proceeding on each transport. How many of the troops are cooking or non-cooking, and he has to put these rations on the ship as voyage rations, as well as cooking pots etc. etc.

**Ordnance.**

This Establishment is formed for dealing with the despatch of Ordnance Stores to overseas forces; the receipt of Ordnance Stores from these forces, and the transshipment of Ordnance Stores from England or from one of these forces to another.

*Procedure. Supply of Stores.* One copy of the Demand from an overseas force is received from Director of Ordnance Stores. This form also shows the source of supply and on receipt is filed in a guard file.

The Arsenal of Supply forwards to this Depot, in case of the Mesopotamian Field Force, five copies of the vouchers for the stores and the railway receipt. In the case of other forces, one copy only of the voucher with the railway receipt.

On receipt of the stores, they are checked against the vouchers for number of packages only, and if correct pegged up on the Issue Order Form and entered in the Tonnage certificate.

Each Force has a distinguishing O on the packages,

Blue,	Basra.
Green,	Egypt,
Yellow,	East Africa...
Black,	Aden.

When a few stores accumulate, a requisition for shipment is put forward on the P. M. T. O., and orders for shipment being received, the stores are moved to the transit shed noted, and made over by number of packages to the Shed Manager of the transit shed, and a receipt obtained for them.

A touch is kept with the Shed Manager to see how shipment is proceeding, and when word is received that all are shipped, the Demand Form, two copies of the voucher for "D" and one copy of the voucher for other Forces, is stamped with the name of the vessel and date of sailing. This is also entered on the tonnage certificate.

Voucher for "D", and one copy of the tonnage certificate are then placed in a box, sealed, and addressed C. O. O. Basra, and handed over to the Chief Officers of the vessel, together with one copy of the T. C. for Port Administration, a receipt being obtained.

One copy of the tonnage certificate, with any notes necessary, is also forwarded by post to C. O. O. Base, Basra, and a telegram sent to "L of C." Basra, and to Army Headquarters, Baghdad, for information.

One copy of the vouchers endorsed with name of vessel is then sent to the D. O. S. from which he pegs up issue on his orders of supply.

To other forces the procedure is the same, except that vouchers are forwarded direct to the forces by the Supplying Arsenal, and the one copy received here is endorsed with the name of the vessel and the date of sailing and sent to the D. O.S.

*Receipt of Stores from Overseas.* Intimations of such arrivals are obtained from telegrams, and from the bills of lading or convoy notes carried by the ships.

The ship having discharged, stores are dealt with as follows:—

Transshipment stores, packages counted, and voucher numbers checked, any discrepancies are noted on the bill of lading or convoy note, and a requisition for shipment put in, and a receipt granted to the Shed Manager for stores taken over. After which, procedure is as above detailed, except that no vouchers go to the D. O. S. but are endorsed with any remarks as to the breakages etc. and forwarded with stores.

Stores for disposal in India are taken over from the Shed Manager, checked as to number, vouchers etc, and forwarded by rail direct from the Docks in full wagons, vouchers received from overseas being forwarded to the consignees.

*Difficulties in carrying out the System.* The great difficulty is in correcting tonnage certificates and vouchers before placing them on a vessel, should a shut-out occur. Before being able to do this, every package in the transit shed must be checked over for source of supply, and voucher number, and if time admits the total packages against that voucher on the T. C., is corrected and a note made on the vouchers, but as a rule there is no time for this, so an entry is made at the bottom of the T. C. showing number of packages shut-out, and a remark "Will follow next ship". When these packages are shipped a new T. C. is made out and the entries corrected with the previous certificate, and the copy of the tonnage certificate sent by post is corrected, so there should be very little difficulty in connecting stores up at the other end.

*Receipt of stores from transports.*

(a) Want of Bill of Lading or Voucher for stores arriving with the ship.

(b). Stores for transshipment arriving in a damaged condition, which leads to such stores being sometimes forwarded in two consignments.

(c). Bulk or variety of stores sometimes cause stores to be so forwarded in two consignments, and this causes trouble at the receiving Base, say vehicles in one ship, stores in another.

*Receipt of Stores from Bases.* Owing to the difference of procedure between India and Home, all stores arrive here on one

Bill of Lading or Convoy Note, although stores have to be taken over by different departments, but this has gradually been overcome, and the Bases now supply separate Bills of Lading, Convoy Notes, and Vouchers, but the stores are dumped out anyhow, and so a lot of time is lost in sorting, and packages go astray.

This might be overcome in a great measure by using coloured markings—as we use forces, but these in this case should designate departments say:—

Blue	"O"	Ordnance.
Red,	"S"	S. & T.
Green,	"C"	Clothing.
Black,	"B"	Barrack & Engineer Stores.
White,	"M"	Munitions.

Otherwise the system works very well, and with very little friction at the other end.

We do not receive the receipt vouchers from overseas forces here, as we are only a transit Establishment. Consequently we do not receive any notice of a shortage till we hear from the source of supply, but our shortages have been so few that the D.O. S. informed me they were practically nil, and could be ignored, but we have had as many shortages from Aden as from all the other forces, probably caused by over-carrying to Egypt

*Clothing Depot.*

Up till recently clothing was handled by the S. & T. C., but now a Clothing Depot has been established at the Grain Depot, Mazagaon, directly under the Q. M. G. through the E. C.

This Depot deals with the shipping of all clothing and necessaries overseas. It also has a retail section in the Alexandra Docks for issue of clothing to Prisoners of War, returning leave men, and to meet all emergent demands as well as arrange for clothing of invalids.

It is hoped to start a section for officers clothing.

*Notes on Munitions Board Stores Shipping.*

This branch has an interest of its own, because, with the exception perhaps of Railways, the extraordinary technical requirements of a modern army in the field for a prolonged per-

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iod had not been foreseen and no adequate organisation had been worked out in peace time for collection at the base and for shipment overseas.

These requirements can be broadly divided into:—

(1). Communications and transportation:—

- (a). Rails, Sleepers, Rolling Stock, Locos, Material for Temporary Bridges (heavy timber), Girders, Railway Workshops, Workshop Tools.
- (b). Wharves, Cranes, Barges, Launches, Lighters.
- (c). Roads:—Material for temporary bridges, Floating Bridges, stone crushers, culvert pipes, Steam Rollers, Quarry Men's tools.

(2). "Works"

- (a). Cover for men and stores, Hospital dairy sheds i.e. building material of all kinds, cement, steel work.
- (b). Electric Installations, Four Power Houses, fans, iceplants, Soda Water Factories, Boilers, Dynamos.
- (c). Water Supply, Pipes of every description and size, pumps power and hand, tanks from 400 gallons to 30,000 gallons, accessories, such as Hydrants, Cocks, Valves etc.
- (d). "Reclamation" work:—Light Railway, tip wagons.

3. "Maintenance" stores:—i. e. oil, tools, coke, tool steel, iron in every form, etc, etc, required to keep works already constructed running.

4. "Field Service" stores:—required for Field works by R. E. Companies in the Fighting Line, Timber, Steelplates, Nails, wire etc, sandbags and barbed wire being still an Ordnance Supply.

Up till March 1917, these varied requirements were met by various departments, Railway, I. W. T. and Engineer Stores Officer, each buying in the open market against each other and each shipping for itself under a hazy control by Embarkation. The Munitions Board was formed as a Central purchasing authority with power to commandeer stores if necessary.

Purchasing Organisation thus being concentrated, the Shipping problem presented itself, and the following is an outline of the arrangements finally evolved. The questions that had to be settled were:—

- (1). Where was Military Control over stores to begin?. If Munitions Board did their own shipping such control would begin overseas, which had manifest disadvantages.
- (2). From whom would Munitions get a receipt for Stores?.
- (3). How was Embarkation to know what stores were to be shipped?. The problem of shipping of Munitions Board Stores being chiefly one of stowage of awkward classes of cargo (from Locomotives to rat-traps) it is essential that the fullest particulars are available for the Marine.

Munitions Board have a store depot at Mazagaon under an Assistant Controller (Stores).

Embarkation has a Munitions Board Stores Shipping Section.

The Assistant Controller (Stores) receives all stores into a depot at Mazagaon where he marks them and prepares invoices for consignments. These invoices give consignee No. of packages, contents, measurement and weight of each package and are sent to the Shipping Officer.

Shipping Officer on receipt of an invoice knows that the consignment represented is ready for shipment.

He classifies the consignment A, B, C, etc., and enters it in a register which is made up bi-weekly and a copy sent to P. M. T. O. in the form of the bi-weekly tonnage statement.

P. M. T. O. allots tonnage in a transport to Shipping Officer.

Shipping Officer makes out an application for shipment in consultation with Assistant Controller (Stores) and P. M. T. O. This document consists of a list of invoices totalling the tonnage allotted by P. M. T. O.

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When this is accepted, Shipping Officer takes over the stores on these invoices from A. C. Stores, by joint tally on the ground, and gives a receipt to A. C. Stores on the invoice form.

After this stage the stores are in Military charge, Shipping Officer loads up, sends to docks, unloads in transit shed and ships through the medium of the B. P. T. He sees that the ship's manifest is correct as far as Munitions Board Stores are concerned, advises consignees of stores shipped, gets a receipt from the ship and tries to obtain a receipt from consignee for "packages only" shipped.

The Munitions Board Shipping Section itself is divided into six sections under the Shipping Officer.

- (1). Document Section. Registers all invoices, prepares applications for shipment, telegraphic advices and consignees receipts.
- (2). Import Section. Clears imported articles for Munitions Board to destination in India or for transshipment.
- (3). Three Shipping Sections in docks.
- (4). One Receiving Section at Mazagaon, working in close touch with A. C. Stores.

Each Shipping Section consists of:—

- 2 Officers.
- 2 Civilian Supervisors.
- 4 British Soldiers.
- 4 Tally Clerks.

A Section is detailed to a ship and arranges its own night reliefs. An O. C. Section, when detailed to a ship, receives from the Document Section.

- (1). The application for shipment or rather the "Engagement List".
- (2). Copies of all invoices.

He orders the Receiving Section to load up and he is responsible for the tally into transit Shed of all stores and he is responsible that all are shipped. He obtains Mates Receipts and files all documents, tally sheets etc, and returns them to the Document Section for record on completion of loading.

Receiving Section takes over from Munitions Board, loads and despatches to Docks as ordered by Shipping Sections. The O. C. has civilian inspectors and tally men to assist him. He is responsible that complete consignments are loaded up according to the invoices. He keeps a register in which the details of loading of each consignment is kept, giving time, wagons, number etc.

From the various records a ledger is compiled giving the history of each consignment and once a consignment is handed over for shipment it can be traced into a particular hatch of a transport, so that really Embarkation is independent of consignees receipts as far as proof of shipment is concerned.

*Medical.*

The Embarkation Medical Branch, Bombay, has a very wide range of duties.

The majority of all sick and wounded from overseas forces invalided to India, arrive in Bombay. They are received on the quay and distributed, according to their diseases, to the Bombay Hospitals which are best suited for their reception. Many are transferred by Ambulance Trains to up country war hospitals directly. For this purpose the trains run right into the docks, alongside the ship. As these are fully equipped with nursing sisters, medical officers, and orderlies, a considerable degree of comfort is maintained during the transfer to up-country. During 1916-17:—

British Officers            4,470.

British Ranks.            57,832.

Indian (all ranks) 110,082.

Sick Prisoners of War 2,002.

arrived from overseas as invalids.

All troops proceeding overseas as details, drafts, and reinforcements, have to be medically examined before proceeding by transport.

The importance of this will be seen when it is realised how necessary it is to prevent infectious diseases such as cholera, small-pox, plague etc., being conveyed by troops for overseas bases, which might result there in the paralysis and stagnation of movement of troops to the firing line from these bases.



**Embarkation.**

As these troops number hundreds of thousands it will be seen that this entails considerable care, and the co-operation of up-country despatching officers is urgently needed to carry out efficiently their preliminary examination before leaving their stations.

Medical drugs and medical equipment on board, on transports conveying troops, have to be arranged and supervised. Anti-cholera, anti-typhoid inoculations, vaccinations, etc. all to be provided for and full arrangements made for these to be carried out under proper technique.

Similarly all troops arriving from overseas forces either on leave or on relief, have to be examined before distribution either to Bombay camps or up-country depots or stations.

The importance of this will be seen when it is understood that many of the overseas forces are serving in countries where diseases new in India are prevalent (such as Jigger, Sleeping sickness in East Africa etc.) and it is most important to prevent the introduction of these new diseases into a country like India, where the civil population is already engaged in a desperate struggle against diseases of all kinds.

Nineteen hospital ships are based on Bombay for the purpose of evacuation of Invalids from overseas, and each is equipped with an average of 500 beds. The administration of these corresponds to the direct administration of 19 general hospitals of the same number of beds, as the standard of comfort expected from Hospital ships is at a very high level indeed.

The same refers to five ambulance trains which are based on Bombay, each corresponding to a hospital of 100 beds.

The peace time invaliding of all British invalids to the United Kingdom as unfit for further service and the extra invaliding as the result of sickness and wounds contracted on field service is also undertaken by the Medical Branch. These invalids have, as you know, to be collected from stations in India, and brought down to Bombay for embarkation on a hospital ship detailed for the purpose. These formerly used to go through the Mediterranean direct, but now each hospital ship is connected at Cape Town with an Australian Hospital Ship on its return voyage to United Kingdom.

The importance of correctness in the documents, of such men as are invalided from India to England when the questions of pay, pension etc, are involved, only needs to be pointed out to be recognised, but most divisions in India are extremely irregular in the submission of these documents. Board papers and I. A. F. Z. 2053 from the G. O. C. Divisions, are frequently received the day before the ship sails. Nominal rolls, clothing statements etc, are mostly irregularly made out, and tally cards which should accompany each invalid, so that he can be readily recognised and distributed, are generally made out in complete defiance of the orders issued on the subject.

Figures from April 1916 to December 1916:—

	B.O's 933	B. Ranks.	10,376.
For 1917.	„ 546.	„	8,346.

At each Railway station the Medical Branch has a sub-office which is responsible for the despatch and reception of all sick on arrival and departure from Bombay throughout India. In conjunction with the A. D. M. S. Bombay Brigade, the sick invalids are collected from Bombay Hospitals and transferred to up-country hospitals, either in small parties, accompanied by a Medical officer, or on ambulance or invalid special trains (the rake of which has been specially made for the purpose.)

1917.

<i>Ambulance Trains.</i>	<i>Ordinary Trains.</i>	<i>Invalid Specials.</i>
B. Officers. 22.	75.	
B. Ranks. 12,347.	4,928.	418.
Indians. 5,040.	5,464.	17,562.
Prisoners. 1,240.	520.	

The branch is also concerned with, on arrival, the posting of medical officers, nursing sisters, and other medical personnel, British or Indian, in Bombay from overseas, or from up-country itself.

The Medical Stores Section is responsible for:—

(1). The supply of the whole of the medical requirements for the Mesopotamian Field Force through No. XI Base Depot, Medical Stores. Indents are received from No. X Depot, Basra,

**Embarkation.**

and they are complied with by obtaining the articles either from the medical store keeper Byculla, or by direct indent by cable from War Office.

(2). All medical drugs and equipment for hospital ships, hired transports, and troop trains, and invalid special trains.

(3). Shipping to Basra of all Red Cross Stores which are being forwarded from Bombay to the Red Cross Commissioners there.

*Sanitation* The sanitation of the dock area and of all transports and ships lying in the Alexandra Docks has to be supervised and carefully inspected day by day.

Lastly the Medical Branch is performing the duties of a 3rd Echelon with regard to the records of all invalids British or Indian (Officers and ranks) which have arrived from overseas forces since beginning of war. At any time the present location of any invalid who has arrived in Bombay can at once be designated.

The wideness of the sphere of energies of the branch will be seen, when it is realised that under the A. D. M. S. Embarkation 11 Officers and about 105 clerks are employed in dealing with its many duties.

I am glad to say that under the able control of Colonel Barnardo the medical arrangements are so good that Mrs Egan, the Americal War Correspondent, who has been in every theatre of war, remarked that there is no place in the world where the sick and wounded are so well treated and perfectly handled. She would like American officers to come over and take notes. Much the same has been said by other independent authorities, both women and men. This is a most satisfactory state of affairs.

*Military Forwarding Officer.*

The office of the M. F. O. receives for shipment overseas all gifts, private stores, stationery, and all kits of deceased and wounded officers and men. Also all arms of officers who are invalided. Gifts from all comforts funds and individuals.

Private stores from firms and others.

Stationery from Government Printing Department, Calcutta.

Kits from Presidents, Committee of Adjustments and Depots.

All packages received from up-country are cleared from the railway and brought into the godown.

Those, locally, are delivered by the consignors at the godown.

Packages before shipment are all checked, addresses stencilled if necessary, packages are repaired if required. They are all numbered numerically, and these numbers are shown on the manifest against the addresses.

Shipments are made in consignments of 1,500 to 2,000 to D. Forces, which are about 4 per month. Other forces when space is available.

Receipts from overseas are the same. Packages, as received, are checked and despatched to the addresses on them.

The section needs great supervision, and entails a lot of detail work. The correspondence is great, and very often troublesome, as full details are never supplied.

A register is maintained showing all packages received and their disposal. In the case of kits, alphabetical registers are kept, also the same for arms.

The difficulties are :—

1. Lack of transport.
2. Packages insufficiently addressed.
3. Enquiries giving no particulars.

*E. F. Canteens.*

The E. F. Canteens were brought into being to supply troops in the field with articles of food to supplement and vary their rations, and also to supply articles of comfort at cheap rates, thus endeavouring to make them more contented with their lot.

In Mesopotamia 60 Canteens have been opened. As the troops advance, canteens are always promptly opened in the advanced areas, and up to the front line of trenches.

A canteen ship travels up and down the Tigris River, distributing canteen stores at posts where there are no canteens.

Major Wallis, Commanding Officer of the E. F. Canteens, East of France, when in Mesopotamia on a tour of inspection, arranged for supper and coffee bars to be opened up in certain areas, also bakeries for the supply of cakes, etc., to the troops, and hair-dressing saloons.

**Embarkation.**

Major Wallis, also had circulated this offer:—

“That officers requiring any articles not supplied by the canteens, could indent to any canteen for same, and indent would be forwarded to Bombay Purchasing Depot; officers would only be charged the actual cost of the article.”

Judging by the number of indents arriving, this offer is evidently appreciated by many, but not, I am sorry to say, by all. The number of commissions I have to do is rather a severe tax.

*Difficulties.* To keep Mesopotamia supplied with necessary stores, an average of 2,000 tons per month is required. They open their mouths very wide, and need to be watched when allotting tonnage, but the results in Mesopotamia are well worth a generous allotment.

*Storage.* Insufficient storage space at Alexandra Dock has resulted in goods having to be stored in the open, and this has caused loss, especially in the case of tinned goods, being exposed to the weather. An application has been made for extra storage space, which is urgently required. Departments like this new one, however, never are able to look sufficiently ahead in their demands for accommodation, and I have only recently been given an idea of what is required.

*Handling of Goods.* The losses occasioned through the rough handling of E. F. Canteen goods in loading and off-loading, and by theft, are very heavy, and work out approximately to about 5 per cent. This is partly due to bad packing, frail cases, and repeated handling between, England, Australia, America, and Busra, and partly through want of sufficient supervision—this latter is now being remedied, I hope.

*Royal Air Force Depot.*

I have nothing much to say about this Depot, beyond the fact that it is divided up into three Sections, Shipping, Embarkation, and Purchasing of Stores.

Stores despatched from England to the Royal Air Force in India, Mesopotamia, and East Africa, are received by this Depot, and forwarded to the various Units in those countries.

Personnel proceeding from and to India, Mesopotamia, and

East Africa, pass through this Depot, where records of their movements are kept.

Posting orders for officers are received by the O. C. Depot, but sometimes by the E. S. O. However, there is no duplication of work, really, because the two departments are under the same roof, and if the E. S. O. receives any posting orders for the Royal Air Force Personnel, he at once transfers it to the O. C. Depot.

Stores which are urgently required and which are not available from the Home R. A. F. Depots, are purchased by the O. C. Depot, Bombay, for the Royal Air Force in India, Mesopotamia, and East Africa. Those stores are purchased from various Contractors throughout India, and the bills are checked, and posted to the respective units for sanction of payment.

*Enquiry Bureau.*

This has recently been instituted, and its chief duty is to collect and give information regarding the movements and disposal of all officers, other ranks and followers British and Indian, who embark or disembark at Bombay.

It also deals with the disposal of documents of Incoming and Outgoing Ships, and submits nominal rolls of Officers and Warrant Officers to the Q. M. G.

*Leave Reception Committee.*

The following is only a brief sketch of the work carried out by the Leave Committee but it will suffice to show what was and will be done.

The Committee is formed of five members, of whom two or three are voluntary civilian workers. Officers are directed to report at the room where the Committee carry on their work, and are as a rule given a definite hour at which to do this.

The Committee keeps up a complete register of all available accommodation in India, which is wired weekly by sub-committees formed at all stations to which officers can proceed. Officers then state where they would like to go or inform the Committee what private arrangements they have made. The wishes of the former are met as far as possible, and they are given an allotment card to the selected station, which is also warned of the number

### ***Embarkation.***

of officers that may be expected. This only applies to those officers proceeding under Leave Committee auspices. Each officer is further given a printed wire, stating his time of arrival, which he is asked to despatch to the local Committee concerned before leaving Bombay. On the card there are instructions directing him to report by wire fourteen days before the expiration of his leave, and on receipt of wires officers are ordered to report for embarkation.

Last year arrangements were also made to accommodate officers in Bombay, either in hotels or private houses, but this did not prove entirely satisfactory, as it was found impossible to give sufficient notice to the people who came forward with offers of hospitality in Bombay, and it is hoped this year to make special arrangements for them in Government quarters.

Officers who had made private arrangements for their stay in India were registered in the books kept for that purpose, and asked to report by wire before expiration of their leave, and given warrants to their destinations. The Committee also gave nomination to the Yacht Club, which enabled officers to use the Club without the payment of donations or subscriptions.

The system worked very well and a great number of letters of appreciation were received.

Some officers did not realise the necessity of reporting by wire ten days before the expiration of their leave, and some failed to notify changes of address, but taken all round very little difficulty was met with.

The work done by the Committee in regard to correspondence with outstations was considerable, but the results were extremely satisfactory, and there is every reason to suppose that the arrangements now being made will prove to be equally satisfactory this year.

As regards the leave for other ranks, there is little to say. The men are received and despatched to their destinations just as are ordinary details, and A. H. Q. details them to transports for the return journey.

*Demobilisation.*

Although the end of the war is still probably some way off, one has to consider the probability of early arrangements being made for demobilisation, and what will have to be done.

Little, I think, can be laid down until the rapidity of movements and probability of congestion or not, can be foreseen, but the first thing we shall have to consider will be the immediate transfer home or to Australia of large numbers of drafts of men required to reconstruct trade.

Personnel should provide little difficulty, as units will be despatched to their stations as ordinary movements, and details to their respective depots, animals being treated similarly.

The main point is that no men or animals fit to travel should be detained in Bombay.

In view of the fact that fewer stores and supplies will have to be despatched overseas, transit sheds in the docks should be released as soon as possible, to enable normal commercial requirements to be met.

As overseas forces will gradually consume their reserves of supplies, no arrangements should have to be made for receiving consumable articles of any kind in India. A large amount of material, however, is sure to be returned for the Ordnance Department, and the Munitions Board, and therefore special arrangements must be made for receiving, collecting and sorting.

There should be no difficulty in this. A special area can be allotted at Mazagaon for the Ordnance, and Munitions Board have already accommodation there. Everything on arrival will have to be removed at once from the Alexandra Docks, and dumped into their respective areas at Mazagaon for sorting, and despatched to Arsenals or factories.

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## CORRESPONDENCE.

### *The Electric Gun.*

From time to time the lay press inserts paragraphs, relating to the possibilities of using electromagnetism in place of a propellant powder for the operation of guns. These paragraphs go the rounds and as no one ever troubles to point out their absurdity they are probably implicitly believed by many persons. Such a note appeared in the "Pioneer" as recently as 31st August, ascribing the invention (which of course is a hardy annual) to "a famous electrical engineer who was also no mean artillerist". The invention consists of a barrel built up of a series of tubular electro-magnets, which draw the projectile through by "an electric current of enormous voltage, the current being switched on to each band in succession immediately in front of the projectile, so that it gained greater and greater velocity until it left the gun at a speed impossible to obtain by an explosive. As the projectile in its forward movement would be kept in the centre of each magnetic ring without touching there would be no wear on the bore; there would be no recoil" etc. *ad nauseam*. The note then proceeds. "This scheme has been examined since by electrical and gunnery experts, and practical experiments have been carried out with interesting results."

It would be interesting to know the names of these experts.

Any first year student could show by a simple calculation that a gun of the sort described is impracticable.

Let us assume a projectile weighing 1000 lbs with the modest muzzle velocity of 3000 feet per second, which is not "impossible to attain by an explosive."

Then the work done on this shell will be  $\frac{w \cdot v^2}{2 G}$  foot-lbs or say 140 million foot-lbs. Now a very long barrel would be essential for all these magnets and we will take it to be 100 feet in length. As the average velocity of the shell in the barrel will be 1500 feet per second the time of travel will be 1-15 second. Therefore work must be expended at the theoretical rate of  $15 \times 140,000,000$  or 2,100 million foot lbs per second of time during this period.

A horse power is equivalent to 550 foot lbs per second, so the rate at which power must be applied during the transit of the shell will be no less than 3,800,000 horse power. The total power expended would be about 70 horse-power-hours, concentrated into one-fifteenth part of a second. There is no possibility of getting away from these elementary facts. By making the barrel 200 feet long the power can be halved, but it still remains a big proposition. The largest electric generator in the world gives about 50,000 horse-power, and, if provided with a big enough flywheel, would give out vastly more for 1-15 part of a second; but the difference between its maximum effort and that required is still great. Over and above this theoretical minimum power, there would actually be a great deal more needed. No electro-magnet can be instantly energized. The building up takes a considerable time, and so does the subsequent demagnetization. No doubt the underlying idea is that the various magnets, each requiring only moderate power, would be energized successively without overlapping. This however would not be the case. In order to have each magnet at full strength as the shell approached it would be necessary to have it switched on an appreciable time beforehand. And the moment the shell passed its centre the magnet would begin to pull it back, even though switched off, owing to the time required for demagnetization. This could only be hastened by reversing the current, which would at once increase the power required.

How this shell, after wobbling through the middle of a smooth tube, would behave later on, deprived of any rotary motion, owing to the absence of rifling, is not clear. It would seem that "Big Bertha" herself would be more likely to hit the objective.

As to the nonsense about "an electric current of enormous voltage" the less said the better; what would be required would be an enormous current at low voltage, as the first year student could have told the "Famous Electrical Engineer."

J. W. MEARES.

*Electrical Adviser, Govt. of India.*

## MacGREGOR MEMORIAL MEDALS.

1. The MacGregor Memorial Medal was founded in 1888 as a memorial to the late Major-General Sir Charles MacGregor. The medals are awarded for the best military reconnaissances or journeys of exploration of the year.

2. The following awards are made annually in the month of June:—

(a) For officers—British or Indian—a silver medal.

(b) For soldiers—British or Indian—a silver medal, with Rs. 100 gratuity.

3. For specially valuable work a gold medal may be awarded in place of one of the silver medals, or in addition to the silver medals, whenever the administrators of the fund deem it desirable. Also the Council may award a special additional silver medal, without gratuity, to a soldier, for special good work.

4. The award of medals is made by His Excellency the Commander-in-Chief as Vice-Patron, and the Council of the United Service Institution, who were appointed administrators of the Fund by the MacGregor Memorial Committee.

5. Only officers and soldiers belonging to the Army in India (including those in civil employ) are eligible for the award of the medal.\*

6. The medal may be worn in uniform by Indian soldiers on ceremonial parades, suspended round the neck by the ribbon issued with the medal.

### *Note.*

(i) Personal risk to life during the reconnaissance or exploration is not a necessary qualification for the award of the medal; but in the event of two journeys being of equal value, the man who has run the greater risk will be considered to have the greater claim to the reward.

(ii) When the work of the year has either not been of sufficient value or has been received too late for consideration before the Council meeting, the medal may be awarded for any reconnaissance during previous years considered by His Excellency the Commander-in-Chief to deserve it.

### **MacGregor Memorial Medallists.**

*(With rank of Officers at the date of the Award).*

1889...BELL, Col. M.S., V.C., R.E. (specially awarded a gold medal).

1890...YOUNGHUSBAND, Capt. F.E., King's Dragoon Guards.

1891...SAWYER, Major H. A., 45th Sikhs.

RAMZAN KHAN, Havildar, 3rd Sikhs.

1892...VAUGHAN, Capt. H. B., 7th Bengal Infantry.

JAGGAT SINGH, Havildar, 19th Punjab Infantry.

1893...BOWER, Capt. H., 17th Bengal Cavalry (specially awarded a gold medal).

FAZALDAD KHAN, Dafadar, 17th Bengal Cavalry.

1894...O'SULLIVAN, Major G. H. W., R.E.

MULL SINGH, Sowar, 6th Bengal Cavalry.

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\* *N.B.*—The terms "officer" and "soldier" include those serving in the British and Indian armies and their reserves; also those serving in Auxiliary Forces, such as the Volunteers and Corps under Local Governments, such as Frontier Militia, Levies and Military Police, also all ranks serving in the Imperial Service Troops.



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April 1919.

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# *Journal*

OF THE

## *United Service Institution of India.*

Published under the Authority of the Council.



SIMLA:

UNITED SERVICE INSTITUTION OF INDIA.

Published Quarterly.



Price Rupees 2..

Printed by S. H. LIDDELL, Longacre, Simla.

# United Service Institution of India.

## RULES OF MEMBERSHIP.

**A**LL officers of the Royal Navy, Army, Royal Air Force, Colonial Forces, and of the Indian Defence Force, and Gazetted Government Officers shall be entitled to become members without ballot, on payment of the entrance fee and annual subscription.

The Council shall have the power of admitting as honorary members the members of the Diplomatic Corps, foreign naval and military officers, foreigners of distinction, other eminent individuals, and benefactors to the Institution, not otherwise eligible to become members.

Life Members of the Institution shall be admitted on the following terms:—  
Rupees 75 + entrance fee (Rs. 10) = Rs. 85.

Ordinary members of the Institution shall be admitted on payment of an entrance fee of Rs. 10 on joining, and an annual subscription of Rs. 5, to be paid in advance. The period of subscription commences on 1st January.

Subscribing members of the Royal United Service Institution, Whitehall, London, are not liable for entrance fee while the affiliation rules are in force.

Life members receive the Journal of the Institution post free anywhere, but ordinary members only in India. All members may obtain books from the library on paying V. P. postage.

Honorary Members shall be entitled to attend the lectures and debates, and to use the premises and library of the Institution without payment; but should they desire to be supplied with the Journal, an annual payment of Rs. 8, in advance, will be required.

Divisional, Brigade and Officers' Libraries, Regimental Messes, Clubs, and other subscribers for the Journal, shall pay Rs. 8 per annum.

Serjeants' Messes and Regimental Libraries, Reading and Recreation Rooms shall be permitted to obtain the Journal on payment of an annual subscription of Rs. 6.

If a member fails to pay his subscription for any financial year (ending 31st December) before the 1st June in the following year, a registered notice shall be sent to him by the Secretary inviting his attention to the fact. If the subscription is not paid by 1st January following his name shall be posted in the Reading Room for six months and then struck off the roll of members.

Members joining the Institution on or after the 1st October, will not be charged subscription on the following 1st January, unless the Journals for the current year have been supplied.

Members are responsible that they keep the Secretary carefully posted in regard to changes of rank and address. Duplicate copies of the Journal will not be supplied free to members when the original has been posted to a member's last known address, and not been returned by the post.

Members or Subscribers to the Journal, intimating a wish to have their Journals posted to any address out of India, shall pay in advance Rupee 1 per annum, to cover foreign postage charges, but Life Members who have left India shall not be liable for foreign postage on Journals.

All communications shall be addressed to the Secretary, United Service Institution of India, Simla.

## Contributions to the Journal.

All papers must be written in a clear, legible hand, and only on one side of the paper. All proper names, countries, towns, rivers, etc., must, when in manuscript, be written in capital letters. All plans must have a scale on them.

Contributors are responsible, when they send articles containing any information which they have obtained by virtue of their official positions, that they have complied with the provisions of A. R. I., Vol. II., para. 487, and King's Regulations, para. 453.

Anonymous contributions under a *nom-de-guerre* will not be accepted or acknowledged; all contributions must be sent to the Secretary under the name of the writer, and the paper will, if accepted, be published under that name unless a wish is expressed for it to be published under a *nom-de-guerre*. The Executive Committee will decide whether the wish can be complied with.

The Committee reserve to themselves the right of omitting any matter which they consider objectionable. Articles are only accepted on these conditions.

The Committee do not undertake to authorise the publication of such papers as are accepted, in the order in which they may have been received.

Contributors will be supplied with three copies of their paper *gratis*, if published.

Manuscripts of original papers sent for publication in the Journal will not be returned to the contributor, unless he expresses a wish to have them back and pays the postage.

# United Service Institution of India.

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1. The United Service Institution of India is situated at Simla.

2. Officers wishing to become members of the United Service Institution of India should apply to the Secretary. The rules of membership are printed on the opposite page.

3. The reading-room of the Institution is provided with all the leading newspapers, magazines, and journals of military interest that are published. War maps are on view in the Reading Room, with the positions of the troops, so far as is known, marked with flags, in each theatre of war.

4. There is a well-stocked library in the Institution, from which members can obtain books on loan, free. Suggestions for new books are solicited, and will be submitted to the Committee. Books are sent out to members V. P. for the postage, or bearing by railway.

5. The Institution publishes a Quarterly Journal in the months of January, April, July and October which is issued postage free to members in India and to all life members; but ordinary members wishing to have their journals sent to any address out of India must pay in advance Re. 1 per annum to cover foreign postage charges.

6. Members and the public are invited to contribute articles to the Journal of the Institution for which honoraria will be awarded by the Executive Committee. Rules for the guidance of contributors will be found on the opposite page.

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# United Service Institution of India.

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APRIL 1919.

---

## SECRETARY'S NOTES.

### I.—New Members.

The following members joined the Institution between the 21st November 1918 and 28th February 1919:—

### LIFE MEMBERS.

Lieutenant F. R. Gifford.

### ORDINARY MEMBERS.

Lieut. Colonel Hawks, G. A.	Captain Vaughan-Jones, H.
Captain Fawcett, W. L.	Captain Blackwood, J. R.
Lieutenant Laurie, J.	Lieutenant Abigail, R.
Captain Adams, A. G.	Lieutenant Webster, G. W.
Lieut. Colonel Gimlette, G. H. D.	Captain Chapman, C. A.
Captain Oates, W. J. S.	Lieutenant Smith, R. J.
The Hon'ble Mr. Mant, R. A.	Captain O'Connor, C. B.



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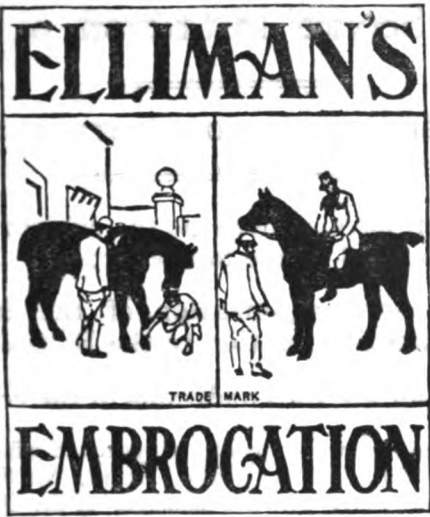
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Indian Field Shikar Book ...	...	K	175
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The Marne and After ...	...	M	919
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H. M. S. <i>By Klaxon</i>	...	...	K	183
The Land of two Rivers	...	...	K	184
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# United Service Institution of India.

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## GOLD MEDAL ESSAY COMPETITION 1918-19.

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- (9) Essays should not exceed about 15 pages of the size and style of the Journal, exclusive of any appendices, tables or maps.

By order of the Council,

SIMLA

G. AIRY, LT. COL.

30th June 1918. }

Secretary, U. S. I. of India

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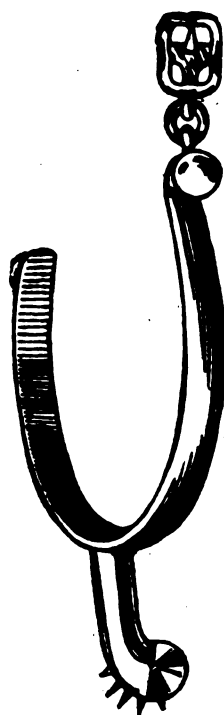
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# United Service Institution of India.

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*(With rank of Officers at the date of the Essay)*

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1873...COLQUHOUN, Capt. J. A. S., R.A.  
1874...COLQUHOUN, Capt. J. A. S., R.A.  
1879...ST. JOHN, Maj. O. B. C., R.E.  
1880...BARROW, Lieut. E. G., 7th Bengal Infantry.  
1882...MASON, Lieut. A. H., R.E.  
1883...COLLEN, Maj. E. H. H., S.C.  
1884...BARROW, Capt. E. G., 7th Bengal Infantry.  
1887...YATE, Lieut. A. C., 27th Baluch Infantry.  
1888...MAUDE, Capt. F. N., R.E.  
    YOUNG, Maj. G. F., 24th Punjab Infantry (especially awarded a silver medal).  
1889...DUFF, Capt. B., 9th Bengal Infantry.  
1890...MAGUIRE, Capt. C. M., 2nd Cav., Hyderabad Contingent.  
1891...CARDEW, Lieut. F. G., 10th Bengal Lancers.  
1893...BULLOCK, Maj. G. M., Devonshire Regiment.  
1894...CARTER, Capt. F. C., Northumberland Fusiliers.  
1895...NEVILLE, Lieut.-Col. J. P. C., 14th Bengal Lancers.  
1896...BINGLEY, Capt. A. H., 7th Bengal Infantry.  
1897...NAPIER, Capt. G. S. F. Oxfordshire Light Infantry.  
1898...MULLALY, Maj. H., R.E.  
    CLAY, Capt. C. H., 43rd Gurkha Rifles (specially awarded a silver medal).  
1899...NEVILLE, Col. J. P. C., S.C.  
1900...THULLIER, Capt. H. F., R.E.  
    LURBOCK, Capt. G., R.E., (specially awarded a silver medal).  
1901...RANKEN, Lieut.-Col. G. P., 46th Punjab Infantry.  
1902...TURNER, Capt. H. H. F., 2nd Bengal Lancers.  
1903...HAMILTON, Maj. W. G., D.S.O., Norfolk Regiment.  
    BOND, Capt. R. F. G., R.E., (specially awarded a silver medal).  
1904...MACMUNN, Maj. G. F., D.S.O., R.F.A.  
1905...COCKERILL, Maj. G. K., Royal Warwickshire Regiment.  
1907...WOOD, Maj. E. J. M., 99th Deccan Infantry.  
1908...JEUDWINE, Maj. H. S., R.A.  
1909...MOLYNEUX, Maj. E. M. J., D.S.O., 12th Cavalry.  
    ELSMIE, Maj. A. M. S., 56th Rifles, F. F., (specially awarded a silver medal).  
1911...MR. D. PETRIE, M.A., Punjab Police.  
1912...CARTER, Major B. C., The King's Regiment.  
1913...THOMSON, Major A. G., 58th Vaughan's Rifles (F. F.)  
1914...BAINBRIDGE, Lieut.-Col. W. F., D.S.O., 51st Sikhs, (F. F.)  
    NORMAN, Major C. L. M.V.O., Q. V. O. Corps of Guides  
    (specially awarded a silver medal).  
1915...No award.  
1916...CRUM, Major W. E., V.D., Calcutta Light Horse.  
1917...BLAKER, Major W. F., R. F. A.  
1918...Gompertz, Capt. A. V., M.C., R.E.

# **The Journal**

OF THE

## **United Service Institution of India.**

Vol. XLVIII.

APRIL 1919.

No. 215.

---

### **SOME NOTES ON TACTICS**

—In the—

### **EAST AFRICAN CAMPAIGN.**

---

BY

BRIG.-GEN. S. H. SHEPPARD, C. B., C. M. G., D. S. O.

1. The East African Campaign was, in many ways, abnormal. Never before had warfare on a large scale, with modern weapons, been waged within a few degrees of the Equator. Never, perhaps, had one consecutive series of operations been conducted over such a vast area, stretching from the Uganda Railway to the Zambesi, and from Lake Tanganyika to the Indian Ocean. German East Africa was twice the size of Germany; Portuguese East, from the Rovuma to Quelimane, was nearly as large as France.

Most abnormal of all were the health conditions. Few of the rank and file (except the indigenous African) lasted more than a year in the Field; and that year probably included several spells in hospital.

It took several months of actual experience before a man, accustomed to more open warfare, "found his feet" in the bush; and by the time he was getting really useful he generally began to go sick.

It was probably an exception for an Indian battalion to engage the enemy, with less than 30% of recruits in its ranks. We could not afford to leave many men in training camps, once the campaign of movement began; for the casualties were so heavy, partly in action and more from sickness, that every man was wanted at the front as soon as he was available.

2. There is perhaps no form of warfare that requires so much inherent pluck in the individual as bush fighting; especially when attacking—as we generally were—in unknown and



**II.—Tactical Problems.**

In order to assist officers working for tactical examinations, the Institution has schemes with maps and solutions for issue to members only, at Rs. 2-8-0 each. 26 different schemes are now available.

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# United Service Institution of India.

## PRIZE ESSAY GOLD MEDALLISTS.

*(With rank of Officers at the date of the Essay)*

- 1872...**ROBERTS**, Lieut.-Col. F. S., V.C., C.B., R.A.  
1873...**COLQUHOUN**, Capt. J. A. S., R.A.  
1874...**COLQUHOUN**, Capt. J. A. S., R.A.  
1879...**ST. JOHN**, Maj. O. B. C., R.E.  
1880...**BARROW**, Lieut. E. G., 7th Bengal Infantry.  
1882...**MASON**, Lieut. A. H., R.E.  
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1884...**BARROW**, Capt. E. G., 7th Bengal Infantry.  
1887...**YATE**, Lieut. A. C., 27th Baluch Infantry.  
1888...**MAUDE**, Capt. F. N., R.E.  
    **YOUNG**, Maj. G. F., 24th Punjab Infantry (especially awarded a silver medal).  
1889...**DUFF**, Capt. B., 9th Bengal Infantry.  
1890...**MAGUIRE**, Capt. C. M., 2nd Cav., Hyderabad Contingent.  
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    **LUBBOCK**, Capt. G., R.E., (specially awarded a silver medal).  
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1905...**COCKERILL**, Maj. G. K., Royal Warwickshire Regiment.  
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1909...**MOLYNEUX**, Maj. E. M. J., D.S.O., 12th Cavalry.  
    **ELSMIE**, Maj. A. M. S., 56th Rifles, F. F., (specially awarded a silver medal).  
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    **NORMAN**, Major C. L. M.V.O., Q. V. O. Corps of Guides  
    (specially awarded a silver medal).  
1915...No award.  
1916...**CRUM**, Major W. E., V.D., Calcutta Light Horse.  
1917...**BLAKER**, Major W. F., R. F. A.  
1918...**Gompertz**, Capt. A. V., M.C., R.E.

**The Journal**  
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Vol. XLVIII.

APRIL 1919.

No. 215.

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**SOME NOTES ON TACTICS**

—In the—

**EAST AFRICAN CAMPAIGN.**

BY

BRIG.-GEN. S. H. SHEPPARD, C. B., C. M. G., D. S. O.

1. The East African Campaign was, in many ways, abnormal. Never before had warfare on a large scale, with modern weapons, been waged within a few degrees of the Equator. Never, perhaps, had one consecutive series of operations been conducted over such a vast area, stretching from the Uganda Railway to the Zambesi, and from Lake Tanganyika to the Indian Ocean. German East Africa was twice the size of Germany; Portuguese East, from the Rovuma to Quelimane, was nearly as large as France.

Most abnormal of all were the health conditions. Few of the rank and file (except the indigenous African) lasted more than a year in the Field; and that year probably included several spells in hospital.

It took several months of actual experience before a man, accustomed to more open warfare, "found his feet" in the bush; and by the time he was getting really useful he generally began to go sick.

It was probably an exception for an Indian battalion to engage the enemy, with less than 30% of recruits in its ranks. We could not afford to leave many men in training camps, once the campaign of movement began; for the casualties were so heavy, partly in action and more from sickness, that every man was wanted at the front as soon as he was available.

2. There is perhaps no form of warfare that requires so much inherent pluck in the individual as bush fighting; especially when attacking—as we generally were—in unknown and

**II.—Tactical Problems.**

In order to assist officers working for tactical examinations, the Institution has schemes with maps and solutions for issue to members only, at Rs. 2-8-0 each. 26 different schemes are now available.

**III.—Maps.**

The Institution has for sale a variety of large scale maps (1 and 2 inches to one mile), price As. 8 each.

They are specially useful for instruction in map reading, tactical schemes and in preparation for examination, and can be had either of English or Indian country.

**IV.—Premia for Articles in the Journal.**

Articles accepted for publication in the Journal are paid for, and a sum of approximately Rs. 400 is awarded for articles and reviews published in each Quarterly Journal.

**V.—Contributions to the Journal.**

With reference to Army Regulations, India, Volume II, paragraph 487, and King's Regulations, paragraph 453, as amended by Army Order 340 of 1913, intending contributors to the Journal of the United Service Institution of India are informed that action to obtain the sanction of His Excellency the Commander-in-Chief to the publication of any article in the Journal of the United Service Institution of India will be taken by the Committee. Contributors are, therefore, responsible that the sanction of their immediate superior has been obtained, and this should be noted on all articles sent for publication. Articles need not be submitted in duplicate.

Contributors must have their articles either typed or printed.

**VI.—Library Catalogue.**

The library catalogue revised up to 1st January 1916 is now available. Price Rs. 2 or Rs. 2-4-0 per V.P.P. A list of books received each year is published with the January Journal.

**VII.—Gold Medal Prize Essay 1918-19.**

The Council have chosen as the subject for the Gold Medal Essay for 1918-19 the following:—

The duties and organisation of the Indian Army after the War and its relation to the British Army.

The following are the conditions of the competition:—

## Secretary's Notes.

iii

(1) The Competition is open to all gazetted officers of the Civil administration, the Navy, Army Air Force and Indian Defence Force who are members of the U.S.I. of India.

(2) Essays must be printed or type-written and submitted in *triplicate*.

(3) When a reference is made to any work, the title of such work is to be quoted.

(4) Essays are to be *strictly anonymous*. Each must have a motto, and enclosed with the essay there should be sent a *sealed* envelope with the motto written on the outside, and the name of the competitor inside.

(5) Essays will not be accepted unless received by the Secretary on or before the 30th June 1919.

(6) Essays will be submitted for adjudication to referees chosen by the Council. No medal will be awarded if the Council consider that the best essay is not of a sufficient standard of excellence.

(7) The name of a successful candidate will be announced at a Council Meeting which will be held in September or October, 1919.

(8) All essays submitted are to become the property of the United Service Institution of India *absolutely*, and authors will not be at liberty to make any use whatsoever of their essays without the sanction of the Council.

(9) Essays should not exceed about 15 pages of the Journal when printed, exclusive of any appendices, tables or maps.

## VIII.—War Maps.

War maps are on view in the Reading Room of the Institution with the positions of the troops, so far as is known, marked with flags, in each theatre of War.

## IX.—List of New Books.

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<i>By Major A. Corbett Smith.</i>			



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<i>By Brig. Gen.-J. H. V. Crowe, C. B.</i>				
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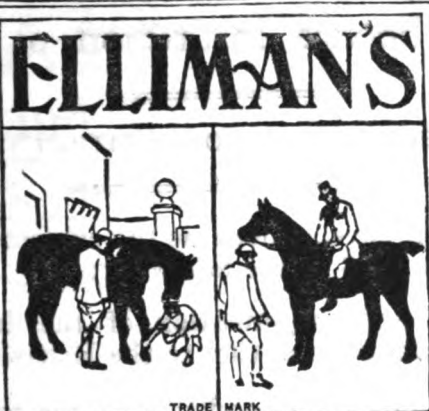
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By order of the Council,

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G. AIRY, LT. COL.

30th June 1918. }

Secretary, U. S. I. of India

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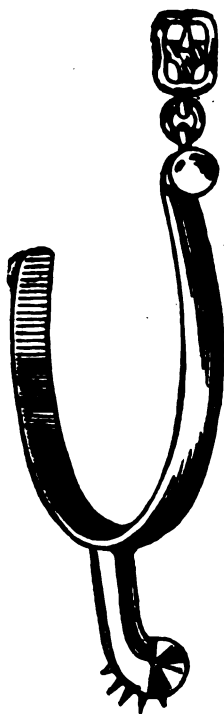
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2. There is perhaps no form of warfare that requires so much inherent pluck in the individual as bush fighting; especially when attacking—as we generally were—in unknown and



intensely difficult country. It was like fighting in a continual fog; and a fog, moreover, through which the enemy (knowing every inch of the country) could see.

The loneliness of the bush weighs heavily on the spirits. Two bodies of troops, ten miles apart, feel as far asunder as the Poles. A single soldier, twenty yards from his next file, feels as if he was alone in Africa.

The tactics of the bush approximate closely to those of night operations; and, when carried on for months at a stretch, test the nerves of the bravest.

Our enemy was of first-class fighting calibre. The German Commander began to expand his forces the moment that war was declared. He had a much larger and more prolific recruiting area than we had. And not only did he enlist askari, but he also recruited a very large number of porters, mostly of the Wanyamwezi tribe, well known as the best carriers in Africa and stout fighting men as well. These porters were trained very nearly as carefully as the askari, and, later on, gave Gen: von Lettow Vorbeck an invaluable reserve of men naturally brave, and thoroughly "shot over", who needed very little additional training to make them fit to take their places in the ranks.

The German system was peculiar. Iron discipline ON duty—the utmost license OFF duty. It is a system that does not help to raise the African—"half devil and half child"—in the scale of civilization; but it was undoubtedly to his taste. Most Africans of warlike tribes are extraordinarily faithful, and, given a good fighting leader, and a free hand with loot and women, they will follow their commander anywhere and for any length of time. It says much for the character of the British Officer that the African follows him equally well *without* the license permitted by the Germans.

It takes 1½ to 2 years to train an African to a really high standard. But when fully trained he is (in his own bush country) as good a native soldier as exists.

3. By the beginning of 1916, the German Commander had increased his African forces to about 12,000 askari. (Probably,

from first to last, he passed 16,000 Africans through his ranks). All of these were not of the same standard, but the bulk of them were very good indeed. To back these he had, in March 1916, rather over 2,500 Europeans.

His organization was specially designed for the peculiar conditions of bush warfare with modern weapons. The fighting unit was a completely self-contained Company. The strengths of these varied. The 13th Company (which was the German "Guard" Company in March 1916) then consisted of 30-40 whites, 230-240 askari, and 6 machine-guns. The average company was 160-180 strong, with at least 10% of whites, and 2-4 machine guns. These Companies normally fought in "Abteilungen" of three or more Companies.

The German Company was a very handy unit in the bush, and was possibly better suited for the enemy's purpose, in this particular form of fighting, than our battalion organization would have been.

The German organization was undoubtedly superior to ours in one most important detail—the disposal of their available Europeans. They had hardly any purely European formations. There were at first a few European "Schutzen" Companies of small strength, but these were soon expended into mixed Companies like the rest.

Our Indian battalions were severely handicapped in this respect. Rarely were more than half their officers effective at any one time; a battalion of, say, 600 men had therefore less than two per cent of white men, as against ten to fifteen per cent with the enemy. In fact, the whole German force in East Africa was a highly "specialized" force, organised and trained with a view to one particular form of warfare.

In terrain such as the bare hills of the North-West Frontier, it is very possible that a first-class Indian battalion could have fully held its own against an equal number of German askari, in spite of all advantages of white personnel; but in the bush of East Africa (and it must be remembered that the bush covered nine-tenths of the whole area of operations) there was no

### ***East African Campaign.***

doubt that the specially trained African troops, backed by a large percentage of whites and by the very numerous and well-served German machine-guns, were a match for the very best troops we could put against them.

4. While the German force was homogeneous, ours was heterogeneous in the extreme. We had, at one time or another, British battalions, South Africans (mounted and dismounted), Rhodesians, units from British East Africa, Cape Corps, King's African Rifles, Nigerians, Gold Coast, Indian regular battalions, Indian Imperial Service units, and many more. Some were trained, others were not. Hardly any, except the K. A. R. and troops from the West Coast, had any experience of bush warfare. The choice of troops was of course dictated by demands from other and more important theatres of war, and was naturally not perfect.

East Africa is by no means an ideal campaigning country for white Infantry; for, unless the European foot soldier is "well done", he goes sick very quickly. The German N. C. O. was allowed 8-10 porters for his kit, and carried very little on his person. The European Infantry of the 1st East African Brigade started the 1916 advance with 20 lbs of baggage per man. By August, this had been halved, and eventually went still lower.

Rations were often scarce, and occasionally approached the vanishing point; and it says much for their stoutness of heart and esprit de corps that 20% of the Europeans of the 1st Brigade who left MOSHI in May 1916 arrived, though absolutely "done in", on the banks of the Rufigi in January 1917.

Other white units had just as hard a time. It was perhaps unavoidable. We were always advancing, and lengthening our Lines of Communication, while the enemy was falling back on predisposed depots and regular lines of supply. Had we tried to give our European ranks even one porter load (50 lbs) apiece, we should probably never have got ahead in sufficient strength to push matters through.

The bulk of the East African Force began the 1916 campaign as amateurs in the special form of fighting that lay ahead of them.

Until Indian Expeditionary Force "B" arrived in East Africa, no British General had ever commanded a Brigade in the bush against an enemy trained on modern lines, and equipped with modern weapons; and the opportunities for operating in Brigade had since then been very few, owing to the fact that the troops defending British East Africa in 1915 were perforce strung out over a frontier 700 miles long.

5. In dealing with Brigade tactics I shall quote my own experiences freely, as I can criticize my own actions without hurting anyone's feelings.

In the earlier stages of the campaign of 1916, when Brigadiers had to train themselves as well as their troops, the "ring-fence" style of fighting a Brigade was a sound one. We were advancing day by day; and most of the fights, as far as we were concerned, were "encounter battles" i. e. we came on the enemy in the bush (nearly always entrenched) without having previously had time or opportunity to reconnoitre his position or strength. There was therefore considerable risk in launching a wide turning movement, for the country was generally very thick, and always unknown; and a battalion sent on such a mission, with no very definite objective, would infallibly have lost itself, and might have been cut up.

The points aimed at, therefore, were:-

(a) To keep the whole force under the close command of the Brigadier. To ensure this, the latter had to be fairly close up, i. e. within 400 to 800 yards of the firing line, according to the thickness of the bush. This gave the troops confidence; and, if a telephone wire broke, the G. O. C. was within easy reach of a messenger.

(b) To keep touch between units. And no one, who has not actually fought in thick bush, can have any conception of the difficulty of this.

(c) To initiate local turning movements to one or both flanks.

(d) To keep a good Reserve in hand. This was all-important, as the enemy's main defence lay in counter-attack.

6. A good example of a difficult bush fight was the engagement at Mkalamo on June 9th 1916.

(See Sketch No. 1.)

Our orders were to try to reach Mkalamo, and to secure the trolley line and the bridge across the Pangani River there. The distance was said to be 16-20 miles; the guide was very hazy about the track; and reports re the enemy were unreliable, both with regard to his strength and whereabouts. The Brigade had five battalions; but it must be remembered that the average strength of a battalion seldom exceeded 400 rifles, and was often much less. A strong Advance Guard of 2 battalions started two hours ahead of the main body. This worked well; the Advanced Guard was strong enough to clear away minor opposition, and the main body and train had a clear run through, without interruptions. By four p. m. we had covered 18 miles, and the main body caught up the Advance Guard just as it became heavily engaged with the enemy in an entrenched position. The bush was so thick that one could literally not see thirty yards in any direction. There were only a couple of hours of daylight left. The men were tired. We did not know where we were, nor where Mkalamo was; and it was impossible to gauge the enemy's strength, though he appeared to have about ten machine guns in action. The best thing to do seemed to be to shove in hard and look out for counter-attacks. One battalion was kept in reserve; the weakest battalion was on baggage and rear guard. (Our Ammunition Column and train was perhaps two miles long, and of course extremely vulnerable on a narrow bush path).

We tried to turn the enemy's left flank, but found more entrenchments there. The enemy counter-attacked several times, but was beaten back by the Reserve and baggage guard. Finally, after pushing the enemy back a considerable distance, we dug in on the ground gained, as darkness was coming on. Next morning the enemy had decamped, and we found the trolley line and bridge intact. We found out afterwards that the enemy had six or seven companies against us; his casualties were heavier than ours.

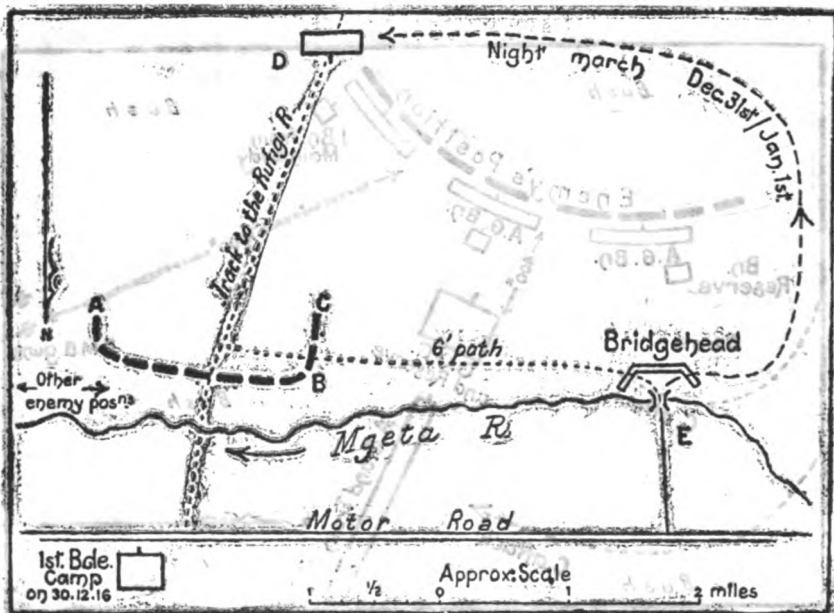


*Comments*—Without knowing it, we had very nearly turned the flank of the enemy's whole position, and were within a mile of the trolley line. It would have been better to have stopped the fire-fight at about 4-30 or 5 p. m., and to have pushed in with the bayonet. And, had stronger fighting patrols been sent from our right flank early in the action, they might have discovered the trolley line in time for us to get a force across it by nightfall. We might then have cut off a part, or even the whole of the enemy force.

7. When we were all better trained, we could afford to take more risk, and try for bigger results. An example of more elastic tactics than the "ring-fence" variety was afforded by a sector of the attack on the enemy's position South of the Mgeta River, on January 1st 1917.

The Brigade had been within a few miles of the enemy's position for nearly three months ; so of course we knew the lie of the country and the position and strength of the enemy fairly accurately.

**Sketch No. 3.**



Daybreak on January 1st was the time fixed for the attack right along the line. A. B. C. was the left of the enemy's whole position. (The enemy's positions were generally prepared for a far larger number of men than actually held them, in order that a threatened sector could be reinforced to any extent).

The 1st Brigade sent its best battalion (400 strong) late on December 31st to cross the bridge at E, and make a circuitous night march to D, where it was to be dug in across the enemy's line of retreat by daybreak of January 1st. The rest of the Brigade camped at E. on the night of the 31st December, and attacked the enemy's extreme left flank B. C. very early on January 1st 1917. As we attacked, the enemy evidently heard of the battalion at D, for he vacated the position and went hard for D, where a very stiff fight took place. The Brigade followed as fast as possible, but was just too late to catch the enemy, who melted off in to the bush as we came up. The battalion at D, held its own well; and the nett result of the manoeuvre was that the enemy had to give up a position he had been fortifying for months, and got well hammered into the bargain. It would probably have been better to have sent two battalions instead of one to point D, but the night march was an extremely difficult one, and the larger force would have had less chance of getting to D, un-noticed by the enemy.

General Smuts was a great believer in wide turning movements, and made much use of them both strategically and tactically. They were very successful; and though, owing to the extreme difficulty of the country, we never succeeded in bringing off a Sedan, yet the enemy was frequently forced out of almost impregnable positions with heavier losses than ours. Very careful reconnaissance was necessary for the tactical turning movements as these had mostly to be done by night; and very good troops were necessary, as the enemy invariably attacked the "blocking" force most furiously.

### **8. Defence of an Exposed L. O. C. Sketch No. 3.**

When holding the Mgeta line preparatory to the advance to the Rufigi, some 15 miles of our Line of Communication



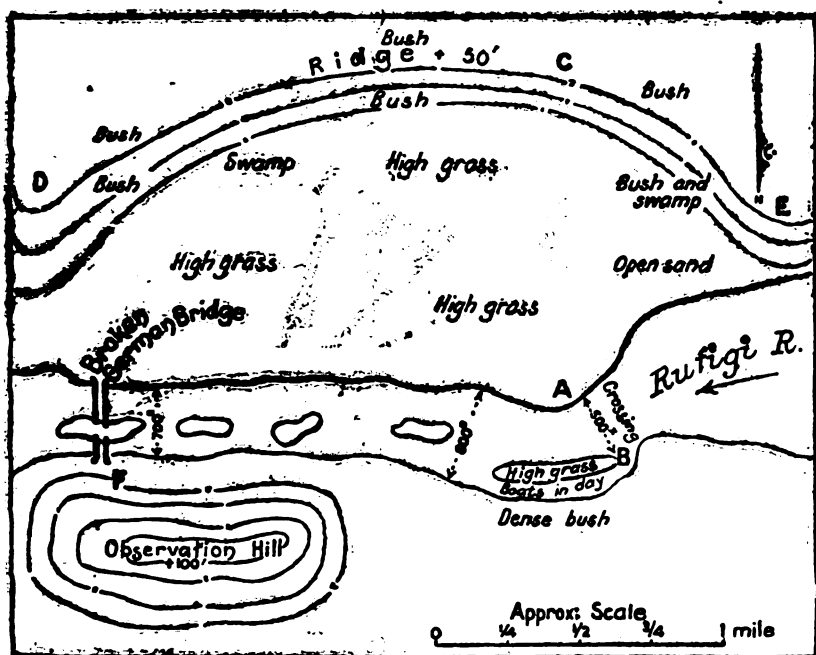
(motor-road) ran parallel to the enemy's positions, and only 9-4 miles from it; the only obstacle between being the Mgeta River, which was fordable at a good many points. The enemy naturally harried this bit of the L. O. C. pretty badly, sniping and attacking convoys, and laying mines in the road. Escorts and heavy patrolling were tried, but could not guarantee security, and used up a lot of men.

So we fell back on the frontier system of "permanent piquets". A succession of "impregnable posts" was made about halfway between the road and the enemy, and on the North of the river. By an "impregnable post" is meant one in which 50 men will cheerfully welcome the attack of five or six times their number without artillery. The posts were well hidden in the bush to avoid shelling. The garrisons varied from 50-200 men. When a raid took place, half the men of any post in the vicinity at once went out and got between the raiders and the river. Sometimes the raiders were killed, sometimes not, but they were always chased; and after a while they left us alone except for the mine-laying, which could be done by a single man at night.

We found this system of "permanent piquets", combined with light patrolling, was far less trying to the men than the heavy patrolling we tried at first, and vastly more effective. The mine-laying was a nuisance, but we got over it in rather a quaint way. The villages along the route were made responsible for stretches of road. It was no good threatening to hang the headmen if mines were laid, as the entire population would simply have cleared off into the bush had we tried "frightfulness". But the African has a sense of humour, and loves a bit of a gamble. So we called up the headmen, shewed them what a mine looked like and offered them 30 rupees per patrol of six men for every mine they found, and 30 with a "Kiboko" per patrol of six for every mine they missed. They thought this no end of a joke, and took it up at once. They found 12 mines between them, and secured Rs. 360/-; only one mine was missed, the patrol responsible (having duly got their "five" apiece) were chaffed

out of their lives by the rest; and we all parted the best of friends.

**9. The Crossing of The Rufigi at Kibambawe, January 1917.**  
**Sketch No 4.**



The 1st East African Brigade arrived at the Rufigi on January 5th, and was ordered to begin the crossing that night. We had only about 4 hours for reconnaissance, and were lucky to find a place which, though by no means ideal, was possible. The task was not an easy one. The river at the point selected was 500 yards wide, deep and swift. The landing-place was commanded on three sides by a concave ridge 1000 yards to a mile distant from it. Our sole means of crossing consisted of seven Berthon boats, (carrying three men each) which were by no means in their first youth. There were 5-7 Companies on the ridge C D E, with a couple of small field guns and the usual complement of maxims. And the river was full of crocodiles and hippos. Our only advantages lay in our heavy superiority in

Artillery, and the possession of Observation Hill, which commanded a good deal of the Southern bank.

We waited till dark, and got 80 men and 2 maxims across on the night of 5/6th; these dug themselves in amidst the high grass at A, and lay very quiet all the 6th. Next night we increased the force to 350 men and 4 maxims, having meanwhile got all our artillery into position, and "registered". Each night, we pretended to be mending the German bridge, and kept the attention of the enemy fixed there. On the 7th, the enemy spotted the real crossing for the first time, and immediately attacked. Our little force on the Southern bank had a rough time, but held the enemy off—the guns on Observation Hill being of the greatest assistance. Night by night, thereafter, more men were put across. A day crossing was tried once, but two boats were immediately put out of action by shrapnel. The hippos were a very real hindrance, as they frequently attacked the boats. One boat was sunk, and others injured. Owing to these and other accidents, there were seldom more than 5 boats working at any one time.

The troops on the Southern bank at A had a hard time. It was terribly hot by day, for the high reeds gave very little shade. All food had to be cooked on the Northern bank, and sent across at night, for any smoke on the Southern bank at once drew maxim fire, as did any movement by day. At last the force was across, except the guns; and the next consideration was, how to get up to the Ridge. Some of the enemy had by this time been drawn away towards the South African Brigade, which had made a surprise crossing un-opposed 25 miles upstream; but there were enough enemy left at Kibambawe to make our "break-out" a ticklish business, unless we could hood-wink them in some way.

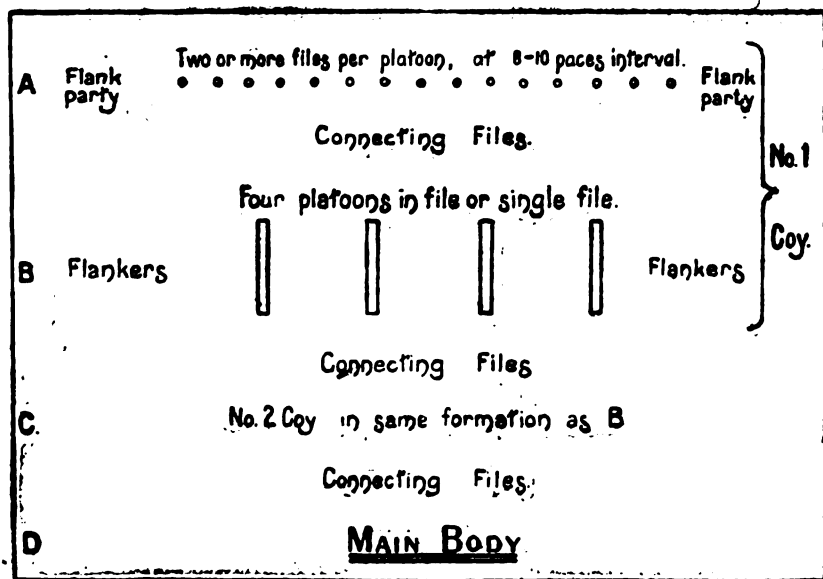
The advance was fixed for 3-30 a. m. on the 18th. Our Armoured Car Battery had a fairly powerful searchlight; this was taken to F. overlooking the German bridge, and was turned on at intervals during the night of the 17-18th. Every askari from E to D fired at it the first time it appeared; the Germans

jumped to the conclusion (as we hoped they would) that we were intending to force a crossing at F. and took their whole force towards D; and the advance to C was unopposed. Once on the Ridge, we were on equal terms with the enemy.

10. **Formations.** It is almost impossible to lay down any stereotyped formation for use in bush warfare, because the nature of the bush varies so greatly with the locality and with the season of the year. A formation that would be suitable in September or October, when the bush has been burnt or has died down, would be totally inapplicable over the same ground in April, just after the rains. And it is impossible to devise a formation that would be equally applicable to thick thorn-bush, high elephant grass, and open forest.

(a) Sketch No. 5 shews the principle of "parallel columns" as applied to a normal Advanced Guard formation in average bush. By average bush is meant fairly open forest, where you can perhaps see for a hundred yards in all directions through the tree-trunks and bushes, and where the grass is about the height of a ripe hay-field in England.

**Sketch No. 5.**



The distances between A. B. C. D. depended entirely on the thickness of the bush, and how far one could see through it. I have known a main body find it very difficult to keep touch with the A. G., though the distance between them was less than 200 yards.

Extended order, in even average bush, is extremely tiring, as each man has to break his own way. It is therefore advisable to change the men in A. occasionally, and also the leading files of the small columns.

These small columns are handy and elastic, easy to control and easy to deploy from, and get over the ground at a good pace without unduly tiring the men. Constant intervals cannot be kept, as the columns have to wind about to avoid obstacles; but that matters little as long as touch is maintained. It is sound not to deploy until fire has to be opened; for a long extended line in the bush is extremely difficult to control.

Each Company had normally two Maxims and two Lewis guns. The main thing to be aimed at in an attack in bush country is to get round one or both of the enemy's flanks. Two of the above guns were therefore kept about the centre of B, while the other two were retained in hand to push round a flank. Most C.O.'s preferred the Maxims for the frontal attack, the lighter Lewis guns being kept ready for the flank.

If a Stokes gun was available, it was well placed at the head of C. It was a most effective weapon in the bush, as it could come into action very quickly and at short ranges.

(b) *Main body.* On a fairly good path, fours or file was the least tiring formation for the troops. The drawback was that the African porter has been accustomed, since about 10,000 B. C., to march in single file. And, however broad the road, it was sooner or later found that the carefully marshalled porter "fours" had melted into single file; which of course made the column enormously long, and correspondingly vulnerable.

Unless the bush was very thick, the parallel column system could be used to defeat this tendency, thus:—

*Forming up  
formation.*

S	S	S	S
S	S	S	S
P	P	P	P
P	P	P	P

*March formation*

S	S	S	S	S.—Sepoy.
S	S	S	S	P.—Porter.
P	P	P	P	
P	P	P	P	

Even if the columns were only five paces apart, the porter would keep his formation perfectly, as he was back in his immemorial single file.

With both A. G. and main body, it was possible to ring the changes on details of the above, to any extent; but the principle of the parallel column was always sound.

11. **Attack and defence.** The experience of both sides shewed that, from first to last, astonishingly few casualties were caused by rifle-fire. Everyone fires high in the bush. There is seldom anything to aim at. A fitting figure might occasionally be seen among the tree-trunks; but, until an actual charge came on, very few enemy were ever visible. The fire-fighting weapon par excellence in the bush is the machine-gun; the Germans realized this very early in the campaign, and based their whole system of tactics on it.

Their method of defence was an extremely aggressive defensive-offensive. For fire-effect they depended almost entirely on machine-guns, and the bulk of their askari were kept in reserve for counter-attack. These counter-attacks were sometimes local, i.e. directed at the flank of the attacking firing line; more often they were wider movements, aimed at the guns, the train, or even at the Force Reserve itself. They were delivered at a great pace, and were pushed in with the utmost determination; machine-guns very often accompanied the wider counter-attacks. When we had been able to reconnoitre the enemy's position, as at the Mgeta River (Sketch No. 3), we could minimize the danger of counter-attack by pushing in our own main attack quickly on the flank; for the enemy was just as susceptible to a flank attack as we were.

But, in the great majority of cases, we just "bumped" the enemy in the bush. The attacking commander had then to discover the enemy's position and strength, and (if possible) where the enemy's flanks rested, before deciding where he would push in his main attack.

This often took time; and, during this time, the enemy nearly always counter-attacked.

It was a mistake to build up too thick a firing-line in an attack. Once men were well down on their stomachs in the grass, firing (generally yards high) at an invisible foe, it was difficult to get them to advance—chiefly owing to the impossibility of adequately controlling a long extended line in the bush; while it was inadvisable to withdraw men or maxims from the firing line, as the smallest retrograde movement frequently led to a local withdrawal on a larger scale than was intended. The soundest plan in an "encounter" attack seemed to be.

(a). To develop only sufficient fire-effect to force the enemy to disclose his position, patrolling strongly at the same time to find his flanks.

(b) To keep the bulk of the attacking force in hand while (a) was taking place, and to be prepared to meet counter-attacks during this time.

(c) Having decided where to deliver the main attack (preferably on a flank), to push this in fast, and with as little fire-fighting as possible, seeking always to get in with the bayonet.

(d) Always to keep a Reserve in hand.

These rules may appear obvious, but they were very difficult to carry out, especially d.

Until troops (and their commanders) were experienced in bush warfare, they always exaggerated the strength of the opposing force, and generally asked for reinforcements early in the action. Unless the Commander of Brigade or Column was adamant on this point, it was not long before he found that the greater part of his Reserve had drifted away to the firing-line, and that he had but little in hand to meet a counter-attack or follow up a

success. Nearly every local reverse we met with in 1916 and 1917 could be traced to an inadequate Reserve.

The enemy's most favourite time for heavy counter-attack was at dusk. If, therefore, the attacking commander saw no chance of a definite decision before dark, he was usually well advised to consolidate the ground won, and dig in, before the light failed.

It must always be remembered that, in nine cases out of ten, the enemy knew the ground and we did not. General Tighe's maxims of 1915 held good to the end.

Keep touch. Guard your flanks. Keep a Reserve in hand. When in doubt, use the bayonet.

12. **Artillery.** Of enemy guns, those that gave us most trouble were the 4.1" Konigsberg naval guns, and the 4.1" howitzers.

The former had an effective range (on land) of about 14,000 yards; and, in addition to its ordinary H. E. shell, fired an H. E. shell with a time fuze. These guns often bothered us considerably in standing camp *i.e.* when we were halted for any length of time. Our own Mark VII 4" naval guns outranged the German 4.1", but transport was very seldom available to bring them to the front.

The enemy 4.1" howitzer was a very light, handy weapon, easily pulled by porters. It ranged up to 6,500', was very accurate, and fired shrapnel as well as H. E. It was a very effective weapon for bush warfare.

Our own Artillery was very mixed. Perhaps the most useful batteries were the 13 pr F. S.A. F.A., 5" howitzers, 2.75" B.L. mountain, and 3.7" mountain howitzers, all of which did excellent work.

Before the 2.75" B. L. arrived in East Africa, the old 10 pr. mountain guns did splendidly, and were frequently pushed right up into the firing line. This heartened the men, and many an enemy machine-gun was knocked out by direct hits.



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The lot of the F. O. O. was by no means an enviable one, for he had frequently to get to within 200' or less of the enemy position, with no cover except that afforded by grass or bushes, before he could give his guns a target.

The great difficulty in the bush was to get sufficient clearance for artillery fire; the howitzer naturally gave less trouble than the gun in this respect.

The 3·7" pack howitzer proved an excellent weapon for bush warfare, and its H. E. shells had a very considerable effect on the rocky kopjes, where the enemy often took up his position. There is little doubt that the 3·7" has a future before it in Indian frontier warfare.

**13. General Notes.**

(a) *Camps.* In the generality of cases, perimeter camp was best. It was very seldom that the enemy located a temporary camp in the bush with sufficient accuracy to shell it effectively. A good plan was to light dummy fires well away to a flank; these were frequently shelled while the camp itself remained immune.

When in touch with the enemy, it was sound to dig in, and make abattis; thorns on small trees were always available. This gave the troops a sense of security, and ensured restful nights. Standing patrols were of course placed on all tracks, and if possible connected with the camp by telephone. If there were commanding hills or knolls in the vicinity, they were held on the same principle as piquets in frontier warfare. It was best, however, to cut down the number of piquets and detached posts to the minimum, and make them very strong; for the enemy was wonderfully quick at detecting a weak post.

In open country, a normal outpost system could of course be used.

(b) Compass reading by day or night, was of the utmost importance. Every wide turning movement had to depend largely on the compass for its direction; likewise all marches across country, unless a pronounced road or track could be followed.

(c) Escorts with convoys should not be scattered singly along the convoy; but should be kept in formed bodies, with flankers well out.

(d) "Shorts" are out of place in a highly malarial country. A baggy knickerbocker is far more serviceable. It seems useless to insist on the use of mosquito nets, if the anopheles is invited to banquet at pleasure on your unprotected knees.

(e) *Quinine*. There are many differences of opinion on this subject. But, as a general working rule, it appeared decidedly beneficial, when in a malarial country, to give every man five grains a day, preferably in the evening.

(f) *The sun*. The tropical sun within a few degrees of the Equator, is peculiarly treacherous. We very seldom experienced anything like the fierce heat of a Punjab June; and there were often cloudy days when the sun appeared as innocuous as on a summer day in England. But the rays of the sun were there all the time; and any man who exposed his head for five minutes, between 7-30 a.m. and 5 p.m., was asking for trouble. A very great deal of the abnormal sickness in East Africa was due to carelessness in this respect.

(g) *Discipline*. There was at one time a most extraordinary, but somewhat widespread idea that, because the East African campaign was of an unusual type, and seemed to savour of "irregular" warfare, discipline and training were less important than in other theatres of war. I have heard the opinion mooted, and defended with some heat, that a collection of elephant-hunters, with no regimental training at all, would have done as well as a battalion of Guards. Never was there a more mistaken idea. Never was there a campaign where discipline was more essential, or produced better results. The elephant-hunter had his proper sphere as an Intelligence Agent or scout. Many of them did magnificent work as such.

But against an enemy of the calibre of Gen. von Lettow's troops, we could not afford to neglect any of the rules of war. Discipline had to be met by discipline. The fighting was severe, the conditions most exacting. And, when a considered and ac-

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curate account of the East African campaign is written, it will most surely be found that, the more highly disciplined the unit or formation, the greater part did it play in the conquest of Germany's greatest Colony.

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# **MILITARY OFFENCES AND THE TREATMENT OF OFFENDERS (BRITISH SERVICE).**

BY

CAPTAIN G. N. MOLESWORTH

2ND. BN. P. A. (SOMERSET) L. I.

Nowadays, when everyone is so fully occupied in teaching the soldier all the countless things he is supposed to know, there is little time available for a philosophical consideration of his misdeeds and the reasons for them. Continually engaged as he is in the cultivation of the Martial Arts, the soldier should have no time for misdemeanours. But records, unfortunately, show that he has. This does not mean that there is an abnormal amount of crime in the British Service or that the British Soldier is a villain. On the contrary. As I hope to show later there is very little crime in the service ; while the soldier, collectively, is a most upright and lawabiding person. It is only a small minority which transgresses.

It is with this minority that I wish to deal, and the question I would consider is whether in this enlightened age we are doing all that is possible for the individuals who compose it, and whether we are dealing with the subject of their reformation on sound lines. For a consideration of available records seems to show that the number of crimes committed yearly in a unit remains almost constant ; and that the majority of these are committed by a certain number of individuals who spend their time in getting into trouble as fast as they get out of it.

The question would appear to resolve itself into three main clauses.

- (a) Military Offences and Offenders ;
- (b) Punishments ;
- (c) The training and education of soldiers under sentence.

Before going any further I would, however, put forward an explanation of the use here and later of the word "crime". The object of this article is not to show that the Service is full of "crime" in the Police Court sense.

## ***Military Offences.***

Such is not the case. The word is an unfortunate one, but so universally used that it can hardly be avoided. I cannot do better than quote the definition given by Ian Hay, in the "First Hundred Thousand" in which sense it is also used here.

".....In the Army, "Crime," is capable of definite shades of intensity. It simply means "Misdemeanour", and may range from being unshaven on parade, or making a frivolous complaint about the potatoes at dinner, to perforating your rival in love irrevocably with a Bayonet".

*Military Offences and those who commit them.*

Military offences may be roughly classed as,

- (a) Minor Offences.
- (b) Offences disposed of by Commanding Officers.
- (c) Court Martial Offences.

Minor offences are of a trivial nature and are dealt with satisfactorily by the Company or Subordinate Commanders. Although the study of Minor Offence Reports gives the discerning C.O., amongst other things, an insight into the conditions of his Companies from a disciplinary point of view, yet these reports are not any accurate gauge of the condition of serious crime in a unit. The reason being that all serious offences come before the Commanding Officers, and, being dealt with by him, do not appear on these reports, at all. Thus they are chiefly an indication that the Non-Commissioned ranks are doing their duty in checking and bringing to light minor irregularities. All serious offences, that is to say those that have to be disposed of by the C. O., appear on the guard Reports of the unit. These are, strange to say, most interesting documents. They well repay periodical perusal. Courts-Martial records are even more interesting and instructive, and we will deal with them first. Where-ever in the following pages percentages are given, these are the actual ones obtained; other figures are only comparative but as such they are equally valuable for purposes of analysis and deduction. All offences considered were committed outside the United Kingdom.

Below are the comparative numbers of Courts-Martial during a period of 10 consecutive years.

## **Military Offences.**

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1908,	10.	1911,	9.	1914,	4.
1909,	10.	1912,	9.	1915,	9.
1910,	11,	1913,	3.	1916,	11.
				1917,	8.

These figures seem to point to the fact that the War and the influx of new type of soldier have not affected in any way the number of serious offences committed annually. I do not attempt to offer any explanation of the virtue of the years 1913-1914, and would merely note that during these two years the British Service probably reached its highest point of discipline and efficiency. With regard to the other years, the regularity of the figures is interesting, as tending to uphold my contention that there is a regular margin of crime (committed by the small minority) which our present system of punishment is unable to reduce.

Between 1908 and 1915 all crimes were committed by what I may call "Pre-War" soldiers. After 1915 drafts of "Post-War" men began to be received, and we find them affecting the number of serious Courts-Martial Offences as follows :—

### *C. M's on Pre-War men. Post-War men*

1915.	100 per cent	Nil.
1916.	27.3. per cent	72.7 per cent
1917.	6.2 per cent	93.8 per cent.

The first draft of "Post-War men arrived about June, 1916

The yearly percentage of "Pre-War" and "Post-War" men in the units under review were, approximately;

### *"Pre-War" "Post-War"*

1916	... 85 per cent.	15 per cent.
1917	... 57 „	43 „
1918	... 47 „	53 „

It appears from these figures that the "Post-War" soldier has committed more than his share of serious crime. But before we irrevocably besmirch his character, we will investigate the matter further. We find that in 1916 a draft reached India, which was distributed among various units. On examination of the conduct sheets of these men it was found that, almost with-

**Military Offences.**

out exception they had been transferred from Detention Barracks in England, with portions of long sentences unexpired. Further enquiry shows, that, in the units under review, during the years 1916 and 1917, of the total offences tried by Court-Martial 79% were committed by men of this draft. There is not the slightest doubt that many of these men were habitual criminals; others committed crimes on account of what I may call "a defective mental condition" (two were later discharged as insane); a few turned out good soldiers.

The foisting of a draft of this type on a unit must naturally seriously affect its crime statistics; yet we notice that the figures for Courts-Martial for these two years are not appreciably affected. We cannot lay the blame, therefore, of all this villainy on the "Post-War" soldier. It is a special case.

We will now enquire into the nature of the offences committed during this period of 10 years. For this purpose we will divide the period into "Pre-War" (1908-1914) and "Post-War" (1915-1917) periods. The percentage of various common crimes is given in the following table:

		"Pre-war"	"Post-war"
Offences against discipline	...	43 per cent	35 per cent.
Desertion; Absence; etc.	...	14    ,,	4    ,,
Drunkenness	...	12    ,,	5    ,,
Conduct to the prejudice of good order etc.	...	7    ,,	7    ,,
Stealing	...	8    ,,	9    ,,
Civil Offences	...	4    ,,	5    ,,
Losing or selling equipt or clothing	...	3    ,,	25    ,,
Other Offences	...	4    ,,	6    ,,
Offences relating to Guards, Escorts etc.	...	5    ,,	4    ,,

The figures for these periods differ materially only so far as "offences against Discipline" and "Losing or selling of equipment" are concerned. They would seem to show that crimes against discipline are decreasing. The large increase in the offence of "losing or selling equip., etc., is capable of explan-

ation, but I will leave this until after a consideration of Guard Reports.

An examination of the dates of commission of Court-Martial crimes discloses some interesting facts.

The months during which most crimes are committed are August, September and October.

Still considering our previous 10 year period we find that, 36 per cent of the total crime was committed during those 3 months.

The soldier behaves himself during the four months November-February; these months account for only 26 per cent of crime.

He reaches his highest point of virtue in December with only 4 per cent (and this in spite of Christmas).

After a virtuous winter he breaks out again in March with 13 per cent, a figure which is only just surpassed by that of August, the worst month.

During April, May and June he subsides into comparative virtue again.

The results obtained from a study of Guard Reports are not for various reasons nearly so satisfactory as those obtained from Court-Martial Records. Guard Reports are only kept for 3 years, after which time they are destroyed. So there is no opportunity for the examination of Guard Reports over long periods, or for the study of Pre-war Reports. Again units—curiously enough—are some-what reticent with regard to these documents. They regard an enquirer with a baleful eye. They appear anxious as to what he may find, or what horrible disclosures he may make. Therefore in considering a short period of only 2 years (1916-1917) it will be well to confine ourselves strictly to generalizations and not to rely too much on figures.

These are some of the points which come to light and they appear to bear out actual experience.

There are more offences committed during the second half of the year—July-October—than during the first half.

Crimes diminish in number during periods of camp and Field Training.



### ***Military Offences.***

The ratio of awards of Detention to awards of C. B. remains fairly constant and is roughly as 1: 4.

Where Detention has been awarded, in only 2 per cent of cases has the maximum amount—28 days—been given. Sentences of Detention varying from 96 hours to 14 days are the general rule. Periods between 14 and 28 days are seldom awarded.

Cases of Drunkenness are most frequent between the months of July and October; but the number of offences of this nature appears to be steadily diminishing.

As regards the actual offences I do not propose to give any figures, as, for the reasons given above, they are open to criticism.

Minor Offences of a purely Military nature, which come under the headings of "Irregular Conduct", "Neglect of Duty", "Creating Disturbances", and the like, account for nearly half of the total;

Absence from parades, fatigues, Tattoo, etc., about a Quarter;

Minor offences against Discipline, such as "Improper reply to an N. C. O.", "Hesitating to obey an Order" etc., and "Drunkenness" come next on the list together;

With the exception of "Loss of Kit" there is no other serious form of crime; "Gambling" is occasionally noticed; Offences against Natives are practically negligible.

Minor offences committed by N. C. O's. appear to be slightly on the increase;

Most of the 'Absence' is attributable to Post-war soldiers, within their first six-months after joining the unit;

Nearly all the offences relating to Clothing were committed by Post-war soldiers.

So much for the information we can extract from records. we will now see what conclusions we can draw from it.

The most gratifying and important point is that roughly 90 % of all crimes committed are purely of a military nature. The remaining 10% is made up of cases of Drunkenness, Stealing, Civil offences, etc., and of these Drunkenness, which is not in itself a very serious crime, is by far the most prevalent. Really serious

crimes, such as Murder, Manslaughter, Forgery, Embezzlement, robbery with violence, offences against Women, and the like, are rarely if ever met with in combatant units. Possibly this may be due to lack of opportunity, more probably it is due to the deterrent effect of discipline and a military life generally. But it bears out my previous statement that the British Soldier is collectively a most upright and law-abiding person and it will bear out the experience of most officers who have to deal directly with him.

The regularity of the figures representing the annual numbers of Courts-Martial seems to point to a constant minimum of crime which our present system fails to reduce. Pre-and Post-war figures, probably, indicate slight decrease in crime since the outbreak of War, for I have shown that special circumstances have seriously affected the crime statistics of units since that date.

There are, however, some additional points of interest as regards Post-war soldiers. A great many of these on reaching their new units appear to have not the slightest idea of the meaning of the words "Discipline" or Punctuality." Hence many have had to learn by bitter experience. This accounts for most of the minor offences "against Discipline" and "Absence" during the last 3 years.

There are excellent reasons to account for the extraordinary increase in crimes such as "Losing or Selling Equipment, Clothing or Necessaries," since the outbreak of war, which might well be borne in mind in the event of future wars. The Last Pay Certificates of men sent to India in Drafts, in many cases, did not reach this country until several months after the individuals. It was noticed, when they did arrive, that in nearly every case men were heavily in debt to Government. Commanders of units therefore, having cautious and unbelieving natures, and in addition being responsible for the debts of their men, refused to pay these men more than the regulation minimum i. e. two or three Rupees a week, until their documents were received. And who can blame them? If the man was clear of debt when his accounts arrived he got his full pay; if he was in debt, as he almost invariably was, he had to remain on short commons till his

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debt was paid off. Some of these debts were, comparatively, very large and took many months to pay off. The soldier, disgusted at being kept in a state of practical penury for a long period and with small hope of a speedy improvement of his position, made up his financial deficiencies by selling his kit. For this he was punished. He also had to pay for new kit, which placed him more deeply in debt. Thus the last state of this man was worse than the first.

And yet none of this trouble need really have ever occurred. The debts, in the first place, are probably directly traceable to the lack of experience of subordinate Commanders at Home at the time. A statement of his accounts should have been sent out with each man to enable his new unit to deal with them. The foisting of large debtor balances of this description on units, who have to see that they are paid off, is obviously unfair. The authorities should have realised that abnormal conditions have often to be met by abnormal procedure, and have written off or reduced these debts. The man should have been given a fresh start when he left for service abroad. This particular crime is now dying out, owing to better rates of pay, War Pay etc. But two-thirds of it need never have occurred.

Drunkenness is gradually diminishing. This is largely due to the fact that the type of the old soldier, who used to get drunk regularly and frequently, is rapidly disappearing. Another cause may be that English Beer has temporarily vanished from Canteens. The country made variety is a very inferior substitute. The soldier has, therefore, to consume larger quantities to produce the desired effect. That it should be most prevalent between July and October—the hottest and most weary months of the year is only natural.

The apparent increase in the number of minor offences committed by N. C. O's is probably due to the fact that the Non-commissioned Ranks, taken collectively, have deteriorated since the beginning of the war. Owing to the continual demand for N. C. O's, for various employments away from their units, many men are now wearing stripes who would never have been consid-

ered for promotion before the war. It is, however, only minor offences by N. C. O's which have increased in number; cases of Courts-Martial are very few.

The dates of commission of offences are very instructive, and this brings us to a consideration of the reasons why the soldier commits crimes and of what I may call the personal element in crime.

July, August, September and October, viewed collectively, are the worst months in the year for crime; in the winter months crime decreases; March, on the other hand, appears to usher in a spasmodic burst of lawlessness. After all, it is only natural and what might be reasonably expected. July to October is probably—certainly in India—the hottest and most trying period of the year in nearly all foreign stations. The soldier, living as he does under worse conditions, probably feels the effects of heat and climate more than the officer. The heat and the monotony of an Indian summer must affect his nervous and mental states. What I think has been called somewhere the "irritability of the East" gets hold of the soldier, just as I have known it on occasion to attack an officer. But the soldier has fewer means at his disposal for relieving his feelings. He is therefore forced to fall back on such expedients as getting drunk and "creating", or being pointedly rude to a Non-commissioned officer and then smiting him. All of which, although no doubt very wrong, is extremely natural.

Fever and illness too, undoubtedly, play a large part in the production of crime; and these, combined with the effects of the Indian climate, are chiefly to blame for offences committed during this particular period. The study of offenders' Medical History Sheets would, doubtless, provide some interesting data. The decrease of crime during the cold winter months is, again, only natural. The lapse of March is more difficult to explain. It may be a spontaneous outburst after a period of uninteresting virtue. It may be that in Foreign Climes "a young man's fancy" has fewer opportunities to "turn to thoughts of love" and is thus diverted into other channels. Let us put it down to the fact that

"the primary emotions, being perennial, tend to express themselves in perennial formulae", and leave it at that. I do not pretend to have studied deeply the relation between Mental states and Crime, but I have always noticed that most crimes are committed by men who are "fed up". In other words that most crimes are committed on account of a definite mental condition of the offender. Conversely if a man is kept interested he will not get into trouble. In support of this I would point to the undoubted fact that during periods of Camp, Field Training, Moves from one Station to another, short periods on Detachment, etc., the amount of crime decreases in the most remarkable manner. For some time after the arrival of a unit in a new station there is very little crime committed. I cannot produce anything in support of the last statement, but many will be able to bear me out from experience.

A great deal is done in these days to try and keep the soldier interested and amused and generally pleased with life. In every Station and unit Games and Sports of every sort are organised; concerts are given; there are the Y. M. C. A. and Soldiers' Homes of various descriptions—all admirable institutions; ladies of the garrisons assist in many ways; furloughs are freely given during the non-training season; and so forth. Within his unit the soldier has Libraries, Reading Rooms, Billiard Rooms, R. A. T. A. Coffee-Shop and Supper-Bar and various other institutions to minister to his comfort generally. One may well ask what else he wants. And yet, all these things, excellent as they are in their way, do not really seem to get to the root of the trouble.

The conditions, which produce in the soldier that mental condition which causes crime, are to be found in the monotony of Garrison Duties—especially in the hot weather—and, more particularly, in the surroundings of his daily life in Barracks.

In most Stations in India, with the exception of a few favoured spots, the barracks are most gloomy looking buildings, set in a waste of dusty parade ground. The interior of a bungalow, especially the large single storey type, is about as cheerful as a deserted Railway Station. Dust, birds, and other dirt producing

evils, combine to render the most strenuous attempts at beautification of small avail. In the winter it is perhaps not so bad; but the summer, with its duststorms and punkahs and other evils, converts these bungalows into most depressing places. In the hot weather the soldier is confined to these buildings for many hours daily.

The nights are worse than the days. Anyone who has ever been into a large Company Bungalow, about 2. a. m. on a hot night in July, on the plains, will know what I mean. The lines of half-naked figures; the punkahs, pulled by two miserable under-paid and overworked creatures, hardly moving; the air so heavy and dead one can scarcely breathe; most men unable to sleep, pouring with sweat and covered with prickly heat; sandflies and mosquitoes just warming to their work; and the whole scene lit by one dim and evil-smelling lamp. Consider the outlook of a soldier with a long succession of similar nights before him. The officer with an efficient punkah or electric fan, sleeping in his own large room with assorted drinks and ice beside him, very often does not realise the conditions under which the soldier lives in many stations in India, even in this year of Grace 1918—in this enlightened age of Electricity and Mechanical perfection.

The monotony of Duties in the Hot weather also affects men. Only early morning or evening parades can take place out of doors. The same bungalow has to be used as parade-ground, dining, living and sleeping-room. Owing to sickness, Guard Duties fall heavily on those who keep fit; the men who get fever and get sent up to the hills to convalesce are lucky. It is the fit men who have to bear the brunt of things, for frequently they cannot be given furlough owing to the shortage of men, through sickness, for duty.

Food again is an important factor. The disordered workings of the soldier's "inner man", caused by unsuitable or indigestible food, undoubtedly must affect his temper and thus have a marked bearing on crime. It is not that the cooks are ill-trained or bad. The trouble is that the cooking appliances in most

Barracks in India are primitive in the extreme, while the ration, although ample and of excellent quality, is, under the circumstances, hardly suitable for the hot weather. I wonder how long that pound of meat and pound of bread has been going on for, and how long it will continue. In spite of schools of cookery and official manuals on the subject, with the limited apparatus at one's disposal, there are few changes to be rung on the dishes turned out by the cooks, and, with the present high price prevailing, it is not easy greatly to supplement the official ration. I wonder if some people, with an excellent cuisine and a multiplicity of dishes to choose from, ever realise the tedium of having for one's dinner (in the hot weather) alternately roast or stewed meat, and for vegetables the cheapest variety that an Indian contractor can supply. In few Barracks, also, are there any facilities for hanging meat, which has to be cut up and cooked at once. The resultant toughness is beyond the power of my poor pen to describe. That the authorities fully realise the deficiencies of the ration for use in hot climates, is shown by the orders issued on the subject of hot meals in the middle of the day. It is a most excellent thing that in the summer only a cold meal should be served at mid-day; but to sit down at 6. p. m., after a blazing hot after-noon, and endeavour to eat a greasy stew of infinitely tough meat must be a most heroic action. It seems to me that if only half the ration was issued to units in kind, in the hot weather, and the balance given to them in money, to supplement the ration to the best advantage from local sources, the soldier would receive a much more suitable diet than he does now.

It may be asked here, "What has all this to do with crime?" It has, in my opinion, a great deal to do with it. I have tried to explain a few of the main reasons why the soldier gets depressed and "fed up", and consequently becomes, in my opinion, a "potential criminal". I would now, tentatively, suggest a few remedies. Efforts might be made to "humanize" barracks in dreary spots, by planting of trees and turfing of areas etc., where possible. Perhaps later on we may get the antiquated punkah and oil lamp replaced by electric light and fans through-

out all plains-stations barracks in India. It would be an inestimable boon. A monthly allowance to units to help them to make their barracks more pleasant places to live in would not come amiss. There are many forms of excellent cookers and ranges now in use in many parts of India; it is to be hoped that they will in time replace the elementary apparatus still in use in many Stations. Of the ration I have already spoken. A suitable and more varied diet of properly cooked food should ensure sound digestions and, consequently, contented soldiery.

With the advent of motor transport, the Hills are brought closer to the plains, and the movement of troops in the event of Internal Disturbances etc., greatly facilitated. Thus the necessity for keeping so many men in garrison on the plains during the hot weather would appear to be less. The British Soldier does no good to himself on the plains in summer. He can do practically no training and he degenerates both from a physical and military point of view. Men require a change of scene and locality just as much as officers, and they have fewer opportunities to obtain it. Two years is quite long enough for a unit to remain in any Station. After this men get stale. A move shakes everyone up and does them good.

It would be difficult to improve on the present admirable arrangements for the recreation and amusement of the soldier, which exist in most stations. Foreign stations cannot compete with Home Stations in this respect. Men should not be kept too long on Foreign Service. They degenerate both morally and physically. One has only to see a real "old soldier" come up to take his discharge as a time expired man. His age is probably only 38, or perhaps 40. And yet he really is an old man. He looks one and moves like one and is generally quite unfit for a hard days work. Five years abroad is quite long enough for a man, if we are to conserve our manhood; he should then be transferred to the Home Establishment.

All these things mean money, but not a waste of money. Better conditions of living and more cheerful surroundings mean greater physical efficiency, better morale and consequently



## **Military Offences.**

less crime. There is no reason why the soldier should become soft and undisciplined, because his food is improved and his life in barracks is made more cheerful and comfortable. And yet, cursed as we are with an immoveable in-born conservatism, we will presumably continue to associate "Discipline" with "Discomfort"—perhaps because there is a D in both, I can see no other reason—till the end of time. There is always the critic who will argue, that what was good enough for our fathers is good enough for us; that the soldiers of the sixties and seventies had far worse barracks, drank beer and ate pounds of beef steak all day in the hot weather, etc., and that consequently the soldier of to day is a degenerate and a pampered product of an un-disciplined democracy. I would ask this gentleman, who-ever he may be, to turn up some old records or biographies of the time. In the Sick Reports, Death Returns and, more especially, in the Records of Crime, he will find a very complete answer to his arguments.

We will now turn from the subject of "Offences", to consider that of the "Offenders". There are roughly three types.

- (a) The Casual Offender,
- (b) The Habitual Offender,
- (c) The Criminal.

No one can adequately legislate for the Casual Offender. He is, generally, a man of good character, who suddenly, for some unknown reason, commits an offence. It is generally a minor offence; but sometimes it may merit a Court-Martial. In most cases it is an offence against Discipline, and is caused by a sudden out-burst of temper. After having expiated his crime, the Casual offender resumes his faultless career. It is always as well to make discreet enquiries into a crime committed by a man of this class, apart from the ordinary official enquiry. Many of these crimes have been traced to such causes as trouble in the man's family in England, the loss of a chum, or a tactless N. C. O. Illness, long periods of Guard Duty with few nights in bed, and mental depression all help to cause this form of crime.

The Habitual Offender is the most common and most difficult to deal with of all Military Offenders. Some men of this class merely commit minor offences, and their conduct sheets are filled with varying awards of C. B. These men are what we may term bad soldiers. Their offences are mostly due to slovenliness, carelessness, laziness and the like. The Habitual Offender who commits more serious crimes, which merit awards of Detention or Courts-Martial, is the man whose case requires most careful handling. Offenders of this nature compose that small minority we have previously spoken of, which is responsible for so large a proportion of crime committed, and which appears to be unaffected by our present system of punishment. Men of this type have generally little education and are, most of them, not remarkable for their intelligence. The outlook on life of the average soldier is extremely limited, but it is doubtful if the Habitual Offender ever looks beyond the few needs of his daily existence.

The crimes he commits are nearly always entirely devoid of guile ; but he almost invariably specializes in some particular form of crime. We will analyse the Conduct sheets of 5 men of this type, whom we will call A. B. C. D. and E. dealing only with offences for which Detention has been awarded. "A" was a Pre-war soldier, the remainder Post-war men. They were selected at random from the class in question. The figures in brackets refer to the number of separate offences ; the days in all cases to periods of Detention, in the order in which they were awarded.

A. (1908 to 1918).

Insubordination (2).	14 days, and 28 days.
Breaking out of Barracks (6).	168 hrs. 168 hrs. 96 hrs. 72 hrs. 168 hrs 168 hrs.
Absence (3)	14 days, 14 days, 168,hrs.
Drunkenness (1)	168 hrs.

*Total award in 10 years...3 months 21 days.*

B, (1915 to 1918)

Insubordination (2)	14 days, 14 days.
Absence (6)	14 days, 6 months, 168 hrs. 84 days, 169 hrs, 14 days.

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<b>Loss of Kit (2)</b>	28 days, 112 days.
<b>Stealing (3)</b>	14 days, 84 days, 18 months.

*Total award in 4 years...3 years and 2 months.*

<b>C. (1916 to 1918)</b>	
<b>Insubordination (1)</b>	28 days.
<b>Selling or losing Kit (4)</b>	28 days, 56 days, 14 days, 112 days.
<b>Drunkenness (1)</b>	112 days.

*Total award in 3 years...1 years and 5 months.*

<b>D. (1916 to 1918)</b>	
<b>Insubordination (5)</b>	6 months, 1 year, 1 year, 168 hrs. 28 days.
<b>Absence (2)</b>	168 hrs. 168 hrs.
<b>Offences against Natives (1)</b>	168 hrs.

*Total award in 3 years...2 years and 8 months.*

<b>E. (1914 to 1918)</b>	
<b>Desertion with loss of Kit (4)</b>	28 days, 112 days, 6 months, 2 years, 14 days.
<b>Absence (1)</b>	14 days.

*Total award in 5 years...2 years and 11½ months.*

All these are the actual award given and do not take into consideration remissions of sentence. "A" was a man on the border-land between the "bad soldier" and the more serious type of habitual Offender. "B" was perilously near the "Criminal class. "D", was one of those men who will never learn what "Discipline" means. It is a matter of incompatibility of temperament. Just as some men have no mechanical ability or can never be taught to ride decently, so others can never be made into good soldiers. There are plenty of men, and Officers too, now wearing His Majesty's uniform in India, whom no one, by any stretch of the imagination, could call "soldiers." Most of them would be extremely annoyed if one even insinuated that they were soldiers. It is not a case of a square peg in a round hole; the peg, in this case won't go into the hole at all. "E" is representative of a type of man

who does not intend to be a soldier. It is an unpleasant type, but exclusively a product of the war.

Two main points are noticeable in these 5 examples. Firstly, long and successive periods of Detention apparently fail to have any deterrent effect. This shows that there must either be something wrong with the system of Detention itself or else the working of the system is not properly attended to in India. Secondly, we notice that, in each case, the offender shows a marked partiality for one form of crime.

Why do these men persist in the commission of the same crime, time after time? In the case of such crimes as "Selling of Kit", or "Desertion", escape from punishment, sooner or later, is impossible. A kit inspection at once discloses the former. Desertion in India, on the other hand, where Europeans are so few, is almost an impossibility. Insubordination instantly meets with its own reward. Thefts in barracks cannot go long undetected and unpunished. Life in barracks is too open and public for the successful concealment of crime. Knowing all this why does a man deliberately court punishment? It may be that he sticks to one crime from lack of originality or force of habit; it is far more likely that he has either a mental "twist" to start with, or has got into the Morbid Mental Condition we have spoken of before, and commits crime simply because he does not care what he does. Frequently he feels that a spell in a Detention Barrack will, at any rate, be a change from the ordinary routine of military life. This, again, is the reason for that extraordinary crime called, variously, "Placing himself in arrest without cause", or "Volunteering for the Guard-Room." The usual reason a man gives for this is, that "he is fed up with soldiering", or that, "he may as well go there himself as be put there." These cases always require careful investigation, to see that the man is not being ill treated in the Barrack Room, or oppressed by Non-Commissioned Officers: but such is very seldom the case. The condition of mind of a man who commits offences of this sort must be truly deplorable.

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Our last class of offender is the "Criminal" and here I use the word in its fullest "Police Court" sense. I am referring here to the really "bad man". He is, fortunately, even in these days, rare; and the Army affords him small scope for his peculiar gifts. One can do very little in the Service without it rapidly becoming common knowledge. That is what the "criminal" fails, at first, to understand. The soldier who keeps all his worldly goods in a box by his cot and all his money in his belt, particularly dislikes professional thieves and burglars, and makes it hot for these gentry when he locates them. One reputed burglar, in a certain unit, concerning whose previous exploits in civil life certain facts had come to light, came weeping to his Commanding Officer and besought him to transfer him to another unit before he was killed. Needless to say his application was attended to with the utmost despatch, and was supported by the strongest recommendations.

Then there is the gentleman who, in civil life, probably specializes in small frauds and obtaining money by false pretences. This class wants watching carefully or all sorts of trouble may arise in the local Bazar. I have known men of this type to obtain very considerable sums in cash from bunnias and native shopkeepers, without an atom of security, simply by the aid of a practised and plausible tongue; an almost super-human feat. I have also heard it whispered that, on one occasion, two bright sparks actually sold the foot-ball ground of their unit to an Indian Cinema Company as a building site, and were only caught out when the said company started building operations. But I cannot vouch for this.

This type of man is too clever to soldier except under compulsion; and, with the advent of peace once more, we may hope to see it disappear entirely from the Service.

### **PUNISHMENTS.**

Military Punishments may be roughly classified as:-

- (a) Confinement to Barracks.
- (b). Detention.
- (c). Imprisonment.

with other small Punishments such as:- Extra Guards, Parades and Fatigues we have no concern. They are of a purely minor character.

C. B. is a very satisfactory form of Punishment, and is fully adequate for the purpose for which it is intended. The performance of the various duties entailed by C.B., if properly supervised, are most irksome to the Soldier, and periods of 10 days and over have a marked deterrent effect on minor offenders. Most men would far rather do 168 hours Detention than 10 days C. B, and if all Commanding Officers realized this, they would get more satisfactory results from their dispensation of Justice. The chief point to be borne in mind is that the various extra Fatigues, Parades and Roll-Calls which compose C. B. are properly organised and rigidly enforced; otherwise two thirds of the deterrent effect is lost, and the punishment becomes practically useless.

The punishment of Detention is not altogether so satisfactory. We have already noticed two things about it, during our examination of records. First that a Commanding Officer seldom gives a soldier the maximum sentence it is in his power to give; Secondly, that, as far as habitual offenders are concerned, sentences of Detention appear to have very little deterrent effect. I may be entirely wrong, but I have always considered that a short sentence of Detention is absolutely useless, both from a deterrent and educational point of view. It merely serves, in the case of a casual offender, to place a serious entry on his conduct sheet, which may seriously affect his future career: in the case of the Habitual offender it only aggravates his morbid mental condition. Small sentences up to 28 days, are, in stations where there is no Branch Detention Barrack, served in regimental Detention Barracks. These generally consist of a few cells, and the carrying out of the sentence is supervised by the Regimental Staff. The Regimental Detention Barrack comes within the reach of the Instructions contained in "Rules for Military Prisons and Detention Barracks": a most dreary volume, which I will deal with later.

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The case of a man serving a sentence in a Regimental Detention Barrack is most unsatisfactory. A unit has not the proper facilities or apparatus, in view of the Time Tables laid down officially, really to deal with the case. The cells also are generally unsuitable, as also in many cases is the Staff in charge. Offenders under sentence require special treatment in special Barracks, under a specially trained staff; and to foist the responsibility of dealing with them on to units, is extremely undesirable. The short sentence, moreover, gives no time for the system to make any impression on the man. The offender, in spite of every effort by the Regimental authorities, comes out no better, in most cases, than when he went in.

In the case of long sentences of Detention, these are served in a Detention or Branch Detention Barrack. From these, again, in my opinion, a soldier returns to his unit, perhaps having improved as a tradesman, certainly having deteriorated as a soldier. I will go deeper into the actual work done in Detention Barracks under another heading. I wish here merely to discuss the system generally.

Branch Detention Barracks are particularly unsatisfactory. In a big Station they are nominally under the Station Staff Officer. This Officer is, nowadays, generally selected more for his ability as a "Babu", than his experience as a soldier. (I am not trying to get at S.S.O's. All the S.S.O's I have ever met have been most worthy persons, for whom I have the highest respect. I have no wish in any way to wound their susceptibilities). In actual charge comes the Commandant or Superintendent, generally a Sub-Conductor, who is, primarily, an expert in the various trades and civil work performed by men under sentence. He has, in nearly all cases, spent his life in the Prison or Detention Barrack Service, therefore his ideas on Military Training cannot be very modern. He has below him Sergeant Instructors to carry out the Military Training of offenders, and the various members of the Detention Barrack Staff. The punishment of ill conducted men under sentence is awarded daily by the Field Officer, who, being frequently renewed, must naturally rely chiefly on the opinion of the Superintendent in awarding punishments.

I have had little to do with Detention Barracks, as distinct from Branch Detention Barracks. But still I hold to my former contention, that men on return from Detention Barracks in India, have deteriorated as soldiers.

The official dictum on the subject of Detention % *K. R. para. 583 (w.)* is worthy of remark.

"Detention has been introduced.....in order that soldiers... ..should not as a rule be subject to the stigma attached to imprisonment.....Where, therefore, a soldier has for a purely Military Offence been sentenced by a District Court Martial to imprisonment.....'The confirming Officer.....should.....commute the sentence to a sentence of Detention'".

The intention "To make the Punishment fit the Crime" is clearly indicated in these lines. The introduction of the system of Detention was a most excellent thing; the question is whether judged by present day standards, it goes far enough in the removal of what I may term "Prison Method". If we lay down the principle that "The punishment should, as far as possible, fit the crime", then it surely follows that a purely Military Offence, should receive a purely Military punishment, whereas an offence of a civil nature, i.e. one against property or society generally, should meet with punishment of a nature corresponding to that awarded to civilian offenders.

The two main objects of sentences are, presumably,— •

- (a) To deter the offender from committing fresh Crime;
- (b) To endeavour to improve his character and make him a more useful member of society than he was before.

Therefore Detention must, primarily, be unpleasant. Secondly, it must be instructive.

To take our second point first. Our Official Manual shows various descriptions of Industrial work which men are employed on, such as Laundry work, Repairing Bedding, Chopping wood, etc. On the reports of most men returned from Detention Barracks in India we find that they have been, in nearly all cases, employed in "Mat making". There may be other employments; I have



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never noticed any. We find in our Manual of "Rules", that a man under sentence must be employed for 9 hours daily exclusive of meals. Then comes this extraordinary Instruction. (1) *Rules for Mil. Prisons, etc. Section IV 3 para. 118 (vii and viii.)* "A soldier under sentence..... Perform at least three hours Military Training Daily.....". It appears from this, and from the time table given, that the remaining 6 hours are devoted to Industrial work. Personally I cannot see what good it does to take a man who by trade is a Fireman, or Winch Driver, or Cowman, etc, and set him, for 6 hours of the day, to making Mats or repairing Beds. It does not improve him as a Tradesman; he is certainly unlikely to take up one of these trades on Discharge, and therefore forgets what he learns in the Barrack; while it does him no good as a soldier. It is as a soldier that His Majesty has use for him; therefore why not concentrate every energy on making him a better soldier? A "good soldier" serving with his unit, trains, now-a-days, for at least 6 or 7 hours a day, exclusive of Guard Duties, fatigues, etc,. But 3 hours military training is, apparently, considered ample for a "bad soldier" in Detention; and this training must, from the circumstances, be inferior to that which he would receive in his own unit. In addition, he has no Guard Duties to perform and gets all his nights in bed. It is, therefore, hardly remarkable that a man on return from Detention should not be that improved, smart and reformed individual one would expect.

As regards deterrent effect, we have seen that this is not great in the case of Habitual Offenders. I have noted previously that this may be due either to the system itself, or to the way in which the system is carried out. I have been told by Warrant Officers and N. C. O.'s, who have been employed in Detention Barracks in India, that the latter is the case. This may or may not be so.

The methods of dealing with ill-conducted and recalcitrant prisoners is laid down in the Manual. Here we find punishments

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(1) Rules Mil. Pris. and Det. Brk. para. 72

ranging from Close Confinement, on punishment Diet, to Forfeiture of remission of sentence, and deprivation of mattress.

The punishment which men really dislike and which has most effect on them is Solitary Confinement on bread and water. I have seldom known it to fail, even with men of the very worst character.

There is no need to consider at length the punishment of Imprisonment. Sentences of Imprisonment are only awarded for very serious offences, and, ordinarily, are combined with discharge with ignominy. Now that every man has to serve, however, these sentences are usually commuted to ones of Detention. Such sentences are, almost always, carried out in Military Prisons. These are run on much the same lines as Detention Barracks, with the exception that men who are for discharge do no military training at all. This is as it should be.

I have already suggested that, if we accept the principle that "the punishment should fit the crime," it should follow that purely military offences should receive purely military punishments. This is the principle on which I base the following suggestions and remarks. The object in view is to give punishment a greater deterrent value; and to make the man a better soldier.

In modification of the present system I would put forward the following scheme.

All sentences of Detention should be served in two portions, different grades of punishment, which we will call the "1st Division" and the "2nd Division". The object of the system of punishment in the 1st Division would be purely deterrent; that of the 2nd Division, the Training and Education of the man.

In the 1st Division men would be dealt with, roughly, on the same lines as they are dealt with now in Detention Barracks, with the following exception. The portion of the sentence served in this Division would contain, ipso facto, a number of periods of solitary confinement on bread and water. The number of these periods would be in proportion to the length of the sentence. Courts-Martial might, however, be given power to increase this number in serious cases.

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In the 2nd Division men would receive purely military training of an intensive character.

Each sentence should be divided proportionately, in accordance with a scale laid down; say one-third to be served in the 1st Division and the remainder in the 2nd Division.

Sentences of less than 28 days to be abolished. C. O's should have their powers of award of C. B. extended to 21 days. They should be given the power to award periods of Detention of not less than 28 days and not more than 42 days, but in the 2nd Division only.

All sentences between 28 and 42 days should be served in the 2nd Division.

Imprisonment should only be awarded for serious civil offences or in those cases where the man is also discharged with ignominy. These sentences would be served, as at present, in Military Prisons.

Having thus roughly outlined the scheme, we will discuss it, in detail, under a fresh heading.

### **THE TRAINING AND EDUCATION OF SOLDIERS UNDER SENTENCE.**

Before embarking on a discussion of the details of the new scheme, it will be as well to glance casually at the "Rules for military detention barracks and military prisons," which govern the working of the present system. This book is probably the most depressing of all the military manuals excepting only the tomes of the Accounts Department. It is about as cheerful reading as a "Bradshaw", or the Index of an Encyclopaedia.

One would expect, in such a work, to find some masterly exhortation to those in authority, some stirring declaration of the high moral principles which they should endeavour to inculcate, something to instil into the mind of the stony-hearted jailor a sense of his high responsibilities and the importance to society of his labours. The manual is, however, strictly business-like. All we can find on the subject is: "..... The Governor shall exercise his authority with firmness, good temper and humanity, and shall.....endeavour to instil soldier-like and moral principles into the mind of every soldier under sentence...and encourage him

to aim at future good-conduct and the attainment of a respectable character in the service....." (1) *Section 2. (1) para. (3)* This is alright as far as it goes, but it goes no further. After this somewhat vapid and insipid effort, the book confines itself, once more to business.

We have already noted that remarkable instruction relating to "3 hours military training a day." We therefore turn on to Section VI, which is headed "Training and Education." This is surely one of the most important sections in the whole book. Yet out of a total of 71 pages (not including the index) less than 2 pages are devoted to this subject, and of these more than one-third of a page is taken up with instructions for the provision of library books. The section is divided into three portions, the first of which is headed "Military Training." This abstruse subject is then disposed of in five lines.

The Time Tables leave little latitude for modification. It is laid down that "—abroad, such modifications as may be necessary to meet local circumstances will be allowed, but no alteration of any kind may be made without sanction from the War Office", (1) *Section VII 3 para 247*. There can be no misunderstanding plain statements of this kind. Therefore there can be no mistake when the Time Table says clearly!

"9-15 a. m. Parade in Marching Order for Military Training.  
12-30 p.m. Military Training ceases."

The extra allowance of 15 minutes, which is an amendment, may indicate a tactful recognition of present War conditions. I do not wish it to appear that I am dealing with this manual in a spirit of destructive criticism. On the contrary. With regard to nine-tenths of it I have no complaint and no concern. With regard to those portions I have criticised, I hope to provide alternatives.

To restate the case once more, the main points in the proposed scheme of punishment are;

(1) the division of the punishment of Detention into two grades, to be called the 1st and 2nd Divisions;

(2) that punishment in the 1st Division shall be solely of a deterrent nature;

(iii) that men serving in the 2nd Division shall receive only Military Training of an intensive nature, together with School instruction.

I will divide the exposition of the detail of the scheme into 3 parts;

(a). Location and accommodation of Barracks.

(b). Staff.

(c) Training and Education.

(a). *Location and Accommodation of Barracks.*

The location of a Detention Barrack abroad, especially in India, is a matter of no small importance. Men under sentence must be kept hard at work. There must be no time for "Satan and his Mischief still". If they are to be kept hard at it, and at the same time kept fit, they must have a temperate climate to live in. It is impossible to do much strenuous training in a Detention Barrack in the Plains in the summer. So that, as far as India is concerned, we may say that the Detention Barrack should be situated in some place which is cool in summer, and not snowed-up all the winter.

It is improbable that a single Division would be able to provide a sufficient number of offenders to render a Divisional Detention Barrack necessary; although it must be remembered that under the proposed scheme men, sentenced by Commanding Officers, will have to serve their sentences at the Central Detention Barrack. Thus one Detention Barrack will have to serve two or more Divisions. One does not, on the other hand, want to waste a man's time in long Railway journeys, so the selection of a site for a Detention Barrack for a group of Divisions would have to be carefully thought out.

In grouping Divisions for this purpose, full consideration must be given to the estimated number of men which will have to be dealt with, so that the establishment of a Detention Barrack might be economically sound. If the average number of prisoners warranted it, Divisions might be grouped as under:—

Group 1. 1st (Peshawar), 2nd (Pindi), 3rd (Lahore).

" 2. 7th (Meerut) and 8th (Lucknow).

- „ 3. 4th (Quetta) Division.
- „ 4. 5th (Mhow) and 6th (Poona).
- „ 5. 9th (Ootacamund).
- „ 6. Burma.

The chief requirements to be borne in mind for a site are, equable climate and easy accessibility.

The next consideration is that of the buildings themselves. They should be of the "Cellular" type, both for 1st and 2nd Divisions. The accommodation of the two Divisions should however be entirely cut off and separate, one from the other. The Lighting, Ventilating and Heating appliances are most important. The material of which cells are constructed should be such that it lends itself readily to strenuous cleaning. Stone walls are far superior to white washed brick, as is also concrete to pointed brick for flooring. A man has to keep his cell spotless, and therefore the material of which it is composed should be suitable. Open Drill and Work Sheds are also very necessary, so that work and training may continue during the hot or rainy weather.

The Lighting of cells and buildings is often unsatisfactory in India, and makes it nearly impossible to carry on work after dark.

As regards utensils and clothing. The former should, if possible, be of a material which can be kept scrupulously clean and also take a polish. The most one can say of utensils supplied now-a-days in India, is that they must be very inexpensive. It is desirable that men serving sentences in the 1st Division should have a special dress of some distinctive colour; such a type of garment as the old canvas fatigue dress, with plain buttons, and a headress without badge of any sort. Men in the 2nd Division would wear their ordinary uniform. The object of this being, to make a visible distinction between the two Divisions and thus bring home to offenders the difference in the two grades of punishments.

(b). *STAFF.*

The selection of the supervising staff is a matter of greatest importance. We have already seen that the Commandants,

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Superintendents, Sergeant Majors, etc, are at present all members of the Military Provost Staff Corps, and are considered for Promotion and Appointments in that Corps. That is to say that a Lance Corporal may go into the Detention Barrack Service and gradually rise through various grades until he, perhaps, in time becomes a Superintendent or a Commandant. Such a system, although no doubt it produces men who are experts in the supervision of the various forms of Industrial Work, cannot from the nature of their service produce men always fully up to date in all branches of Military Training. This is apparently recognised by the authorities, for we find that instructors in Military subjects are employed in Military Detention Barracks for periods of years; after which time they are replaced. This no doubt gives a supply of up to date Instructors. But there are very few N. C. O. instructors, however good at their work, who are capable of carrying on instruction in a systematic and intelligent manner, without supervision. If soldiers in Detention are going to receive training as such, they should be supervised by specially selected combatant Officers.

Thus the following supervising and controlling staff would be required for a Detention Barrack under the proposed scheme.

(1) Commandant; an experienced combatant officer, specially selected as a Disciplinarian and Organizer, fully acquainted with the latest methods of military training in all its branches.

(2) Assistant Commandant; a specially selected combatant officer, who would be primarily responsible for all military training.

(3) Superintendent; promoted through the Military Provost Staff Corps.

(4) Detention Barrack staff; drawn as now from the M. P. S. C.

(5) Instructional Staff, of highly qualified N. C. O's.

(6) A Medical Officer; selected for his knowledge of Mental Diseases.

The Commandant would be responsible for the working of the establishment, and training as a whole; the Assistant Com-

mandant for the Military Training only; the Superintendent would attend to the Industrial Work and the Administration and Routine of the establishment generally. The Detention Barrack staff would supervise the industrial work of the 1st Division and be responsible for the routine of both Divisions; the instructional staff would be concerned with military training only.

The Commandant and Assistant Commandant should hold their appointments for four years only and should frequently visit Schools of Instruction, in order to keep abreast of the very latest methods of training. It is a moot point whether Instructors should be changed at short intervals or not. They should not, at any rate, be employed for more than three years continuously, and should frequently visit Schools of Instruction to refresh their knowledge.

There should, moreover, be, some central system of periodical and frequent inspection of Detention Barracks, so that a uniform system of work and instruction might be maintained. This could be done by an Inspector working directly under Army Head-Quarters. This officer might also be responsible for the compilation of statistics on the subject of current military crime, and from the information so obtained, modifications and alterations in the system of training might be made, from time to time, as found desirable.

*(c) Training and Education.*

We have seen that under this scheme men in the 1st Division would receive much the same training as they do under the present system, while in the 2nd Division they would receive Military Training only. It is essential that the difference between the two Divisions should be very marked. There is no need to go deeply into the treatment of men in the 1st Division. A glance at the time tables in the Manual will give all the information required. The whole object of the period served in the Division, with the periods of solitary confinement it would entail, the special dress, special diet and industrial work, is to deter the soldier from further misconduct. The object of the work of the 2nd Division and its marked contrast to that of the work of 1st Division is to



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raise the man in his own estimation, to give him a more cheerful outlook on life, and, by a course of intensive training, to make him a better soldier. It is with the work of the 2nd Division, therefore that we are chiefly concerned.

We have already said that the soldier in this Division will wear his uniform and badges, in contrast to men in the 1st Division who will wear special Detention Barrack garb. His training will be purely Military, with the exception of daily school, and will be supervised by a Combatant Officer and special Instructors. It is only at meals and at night that he will come under the jurisdiction of the Detention Barrack Staff. The following Time Table of work is suggested for week days :—

<i>Time.</i>	<i>Work.</i>
a. m. 5-30 (a)	Rise, Make Beds and clean Rooms etc.
6-5 (b)	Check Roll taken, Ablutions, Rooms inspected etc.
6-25	Cup of Cocoa or Tea issued.
6-30	1st Parade.
7-30	1st Parade ceases.
7-35	Breakfast.
8-5	Clean Equipment and Room.
8-50	Closeting.
9-15	2nd Parade.
p. m. 12-15	2nd Parade ends.
12-20	Clean Equipment.
12-35	Dinners.
1-5	Clean Kit etc.
1-30	1st School commences
2-30	1st School ceases.
2-35	3rd Parade.
4-45	3rd Parade ceases.
4-50	Ablutions commence.
5-10	Suppers.
5-35	4th Parade commences.
6-30	4th Parade ceases.
6-35	2nd School commences.
7-35	School and Work cease.

<i>Time.</i>	<i>Work.</i>
7-40	Lockup.
9	Lights out.
(a) 6 a. m. } (b) 6-35 a. m. }	November to February inclusive.

Modifications would of course be necessary to suit local conditions.

It is impossible to lay down the actual work to be carried out. It should be possible, however, to squad men according to the date of their admission and to pass them thus through various stages of a carefully graded course. A definite standard of efficiency would have to be reached before a man passed from one stage to another, and, if this standard was not reached in a certain time, the man would be punished. The instruction given should be mental, moral, and Physical, and should, if possible, be given in that order. It is no use training a man's body and starving his brain ; particularly in the case of offenders whose crimes are probably due to mental causes.

Special attention should be paid to Education, and first class Assistant Schoolmasters should be employed. Army Schoolmasters will tell one that the Post-War man is not so well Educated as the Pre-War man. There is an upper stratum of highly educated men, but below that the standard of education is very poor. There is no reason why men should not take their 3rd class certificates while serving in the 2nd Division. The lessons given should be interesting as well as instructive, and stress should be laid upon Army and Regimental History, and the traditions of the Service.

The maintainance of Discipline and the powers of punishment of a Commandant require careful consideration. The present system of allotment of marks is an excellent one and is clearly explained in the Manual. The manner of award, however, requires strict supervision. The question of establishment of some system of promotion, corresponding to that of "Convict Officers" in Indian Civil Jails, might be considered. Convict Officers, or overseers, are promoted, by virtue of exemplary

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behaviour, to small positions of trust and importance in Indian Prisons.

Rules for Military Prisons and Detention Barracks Section IV, (3) para 118.)

Similarly, in Detention Barracks, a man in the 2nd Division, who is noted for good conduct and hard work, might be made in a small way responsible for a squad. He would wear a special badge, and would perform such duties as escorting men from one place to another, supervising them during school hours, see that they do not communicate with one another, report irregularities etc. As a reward he might enjoy extra earning capacities for remission of sentence, be allowed to write and receive letters more frequently, and be allowed minor privileges. Enjoying these privileges, his fall, in case of dereliction of duty, would be correspondingly great. The placing of responsibility on a man often has a marked effect on his general behaviour, and will, on occasion, convert a well known "Badmash" into a good and reliable soldier or N. C. O.

The Commandant should, in addition to the minor punishments now laid down, be allowed to award periods of solitary confinement up to 3 days, or to transfer a man from the 2nd Division for periods not exceeding 14 days. Any other punishment to be given by a board of visitors, not less than 3 in number, who would visit once a week or when required.

If a man is to be worked hard he must be properly fed. Thus, although men in the 1st Division would receive the same diet as is now laid down for Detention Barracks, the 2nd Division would receive the full ration. The cooking arrangements and variation of the diet would be supervised by the Medical Officer, in addition to his other duties.

The whole subject of military Offences, Offenders and Punishments is so large that it is very difficult to compress into the limited space of an article, without breaking the chain of cause and effect. So many points present themselves for consideration, that one hardly knows which to select and which to put aside. I must therefore crave indulgence for passages in which

detail is vague and sketchy, or which appear to be disconnected. There is much that is valuable to be learned from a study of the Penal Institutions of Continental and American Armies and our own Civil System at Home. I have had no space to touch on either of these subjects.

The figures and, so-called, "statistics" I have given may receive rough handling from critics. I fully admit their deficiencies and limitations. The records I have had access to, through the courtesy of the officers in charge, cover too short a period to allow my figures any great accuracy. Apart from this, I do not claim that they are anything more than approximate. My only contention is that, such as they are, they are a true indication of the condition of crime, and most of the conclusions I have drawn from them are borne out by experience. Some of these conclusions may or may not be correct; in which case the reader is quite at liberty to draw his own. In closing this subject, I would suggest that these figures may be taken as a slight indication of the information which might be compiled by some one with time at his disposal, and free access to any records and documents he required. We are always seeing police Reports and provincial crime statistics in the Pioneer and other leading Indian dailies. We very seldom see any information regarding current crime in the service which concerns us most.

The ancient tag, "Prevention is better than cure," is as true today as it always has been and always will be. But money spent on some of the various barrack improvements, I have previously indicated, would do much to save lives and prevent crime. Such measures, however, will not eliminate crime altogether. A cure is also necessary. As regards this I have endeavoured to outline a scheme for a modified form of Detention, designed to meet the changing requirements of the time. Since human nature is one of the factors in the problem we are dealing with, it stands to reason that there can be no hard and fast solution; for human nature is always an unknown quantity. The only method of reaching a satisfactory solution, is by trial and experiment. I do not claim that the scheme I have outlined is the

only solution or even a correct one. I merely point to present results which may not be quite satisfactory and suggest, as a remedy, a system in which the military training of offenders is placed before industrial training, as being likely to be of more value to the Army as a whole than the present one. The trial of some such scheme would probably produce some valuable data, and, even if it proved a failure, would be an interesting experiment.

I do not wish it to be thought that this article is an attack upon Detention Barracks and their management in India. It is nothing of the sort. I write in no carping spirit. I would merely draw attention to the growing necessity for more liberal ideas in connection with the treatment of offenders or, indeed, of soldiers generally. The whole social system, and the Army with it, is in a state of change and flux. The newspaper phrase, "Democratic Army" is not the substanceless catchword that some people would have us believe. Unpalatable as it may be to the old "army-is-going-to-the-dogs" school, there is no denying the fact that this spirit will grow stronger and stronger in the Army during the coming years. It will not mean that all respect for authority and discipline will go by the board. We are too stolid and peaceful a people really to "Bolshevic" successfully. If this spirit is properly handled, it will mean stronger bonds of Comradeship and Sympathy between all ranks, a fuller understanding of each others difficulties and limitations and increased all round efficiency. The growth of such a spirit will mean changed relations between Officers and Men and consequent changes in the methods of award of punishment and in the punishments themselves.

There are some conservative people who will argue that this changing of the form of punishment and improvement of the soldier's surroundings and life in barracks, is purely unnecessary pampering and can only tend to relax the bonds of discipline. I regret that I cannot agree with this. A well looked after and well fed man is cheerful and contented, and therefore more amenable to discipline than one who is uncomfortable and unsuit-

ably fed and therefore a prey to mental depression and indigestion. The scheme of punishment I have outlined will, if properly carried out, be anything but a pleasure trip or a rest cure. Changes of some sort are bound to come, if not in the immediate certainly in the near future. Just as the "cat" and the triangle and the old Prison system have passed, so too will the present Detention Barrack system change and change, until it, too, fades into oblivion.

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## **THE CAPTURE AND DEFENCE OF MANOLIASSA: A TACTICAL GEM.**

### **GREECO-TURKISH CAMPAIGN IN EPIRUS 1911-1913.**

*(Lecture delivered by Captain A. H. Trapman (1/3rd London Fusiliers attached 8th Reserve Battalion).*

The general situation was as follows:—The Greek armies in Macedonia had won a decisive victory and had entered Salonika. In Epirus a composite force of some 20,000 men was endeavouring to work its way towards the important city of Janina, defended by two Turkish divisions, across a country which is little better than a tangle of rugged mountains, attaining an average height of 5,000 feet.

The village of Manoliassa stands on a small isolated hill which emerges from the centre of a triangular plain. It commands the entrance to one of the three passes that lead to Janina from the south, just as Spion Kop commanded one of the approaches to Ladysmith. It was of importance for the Greeks to obtain possession of this key position, which at the time they believed to be unoccupied, and they therefore detailed for that purpose a force which subsequent events proved to be insufficient for the enterprise, had it not been for the wonderful skill and initiative of one particular officer.

Further to the eastward, was a second valley running north and south and giving access to Janina. These two valleys are roughly 10 miles apart and are separated by a mass of impenetrable mountain ridges. The valleys are themselves mere clefts in the mountain wall and are commanded on the south, the one by Manoliassa Hill, the other by the small hill I have marked "D".

To achieve this double purpose one Greek Battalion of the 15th Regiment, (composed of the overplus of reservists and volunteers from other regiments, few of the N. C. O's or men of which had had any military training other than they had managed to pick up during some six weeks at campaigning) was ordered to

march at noon and secure the two hills. The distance to Manoliassa was some 12 miles, and it was estimated that they would be able to reach this point about 4 p. m. and, leaving a garrison there, push on during the night to hill "D". In addition to this very inadequate force there was a contingent of 300 Cretan irregulars under the command of Constantine Manos, who was instructed to act as the advance guard to the column as far as Manoliassa, but he was specifically informed that he was to act independently and was in no way under the command of the Battalion Commander. As the interest centres around the action of Constantine Manos and his 300 Cretan bandits, I will give a sketch of the men and their leader, for it was entirely due to his skill, *foresight, forethought and correct appreciation of the rapidly changing situation* that the success of this brilliant operation was due.

I would ask you to picture a robust man standing some five feet six, with classical features and grey eyes which looked dreamy in repose, but which were capable of lighting to the fury of battle. A B. A. of Balliol College, Oxford, he spoke English perfectly and was a cultured man of the world and a brilliant linguist. He was accounted the finest living poet in Greece. The only surviving son of that General Manos who was the only Greek General not to lose either his reputation or his presence of mind during the disastrous Greco-Turkish war of 1897, he was one of the most influential landowners in the Greek island of Crete, and had spent no inconsiderable part of his life and fortune in leading bands of irregulars against the Turkish Army of occupation in his native island.

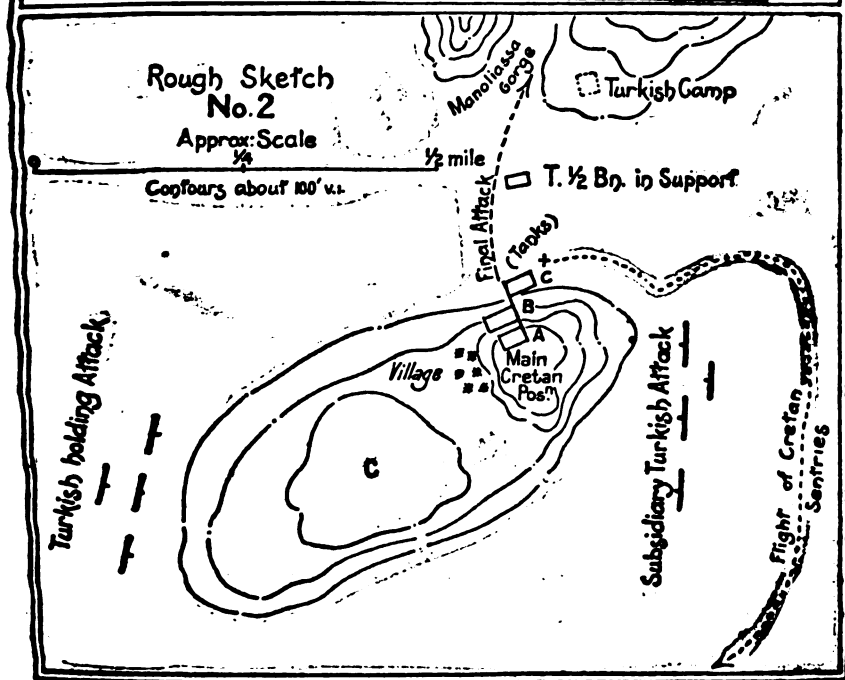
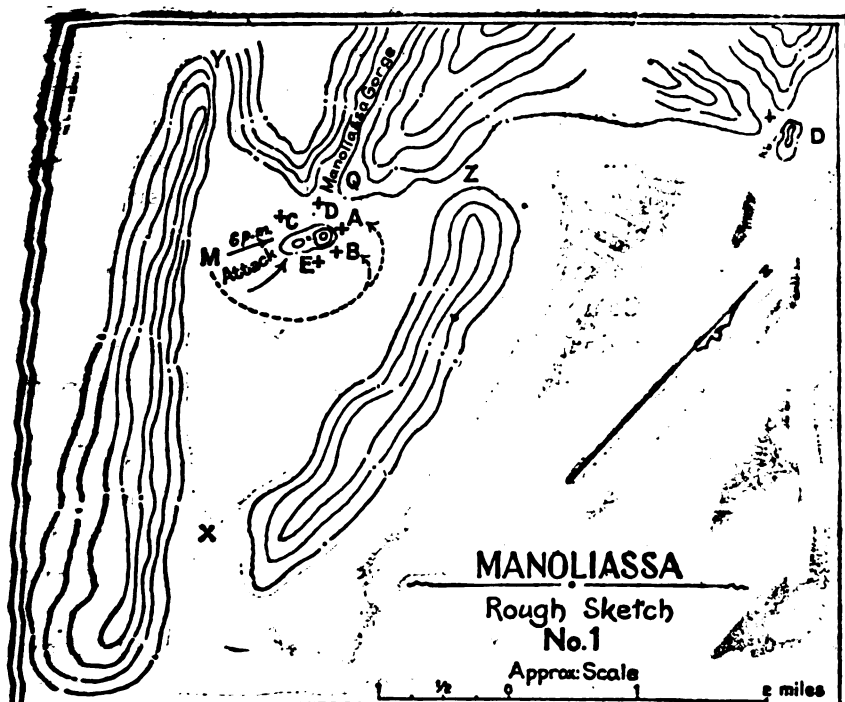
At the commencement of the 1912 campaign he raised and equipped at his own expense a band of 300 mountaineers from his own estates and brought them over to Epirus. These men were all splendid individual types of the professional mountain brigand. They had all undertaken a solemn vow not to surrender or fall alive into Turkish hands. They executed this vow to the letter, and in a later action died to a man. Their ideas on discipline were most rudimentary, and their standard of musketry



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was confined to individual marksmanship of a high order. For the most part they were uneducated and even those five of their number who had been nominated by Manos to act as "officers" could scarcely read or write. They were clothed in black, with baggy knee-breeches, Zouave jackets worn over a sort of jersey shirt with a dark blue camarband, into which was stuck a whole battery of murderous knives, swords and silverhandled horsepistols. On their heads they wore silk handkerchiefs and they were armed with Mannlicher rifles and bayonets and carried 200 rounds of ball ammunition disposed about their person in all sorts of fancy bandoliers and pouches. Their only protection from the weather was a blanket which they wore en banderole and were accustomed to supplement at night by looting from whatever unit or village happened to be handy.

At this hour (1 p. m.) of the day the information about the enemy was entirely negative. We were operating in a country where such few inhabitants as existed were supposed to be friendly, consisting exclusively of Greeks who had for centuries endured Turkish misrule. There were, however, known to be spies about and, in a country where the inhabitants are bilingual and where an excellent birdseye view can be obtained from the nearest mountain crest, it behoves the commander of every detachment to be on his guard against spies and surprise. Before moving off therefore Manos detached a small party to precede his column. They consisted of five groups of four men each. The groups were ordered to proceed to the three entrances to the Manoliassa plain and watch these (at the places marked X, Y, Z, on the sketch) and to stop all people passing through and bring these in at 5. p. m. to the spot he intended first to halt at, marked "M" on the sketch). The remaining two groups were directed to scout Manoliassa Hill and valley respectively for signs of the enemy and to send back information acquired by 5 p. m. to the halting site at "M". He then told off a protective advance guard and flank guards and commenced his 11 mile march, which he accomplished in three hours over the mountain tracks.



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Another point worthy of note is that, although he had no reason to believe that Manoliassa Hill was occupied by the enemy, he did not fix this point as a rendezvous for his scout patrols to send back word to; he preferred to select a spot short of his objective which was most unlikely to be held or watched by the enemy if anywhere about, and which at the same time was fairly central and equidistant from the various objectives of his patrols. As a matter of fact, Manoliassa Hill was occupied by a Turkish Company, and had that been selected as a rendezvous it is doubtful whether he would have ever seen his scout patrols again, or at all events his junction with them would have been greatly delayed.

At 4 p.m. Manos' column reached "M" which is out of sight of Manoliassa, and about one mile distant therefrom. Shortly after one of his scout groups brought in the information that Manoliassa hill and village were occupied by at least one company of Turks and a little later his other patrols came in, bringing with them some 12 civilians (mountain shepherds and peasants) whom they had rounded up, and the information that the remainder of the Turkish Brigade (5½ Battalions) together with a Brigade of Field guns was encamped at the spot marked "Q" at the entrance to the gorge.

Manos then sat down, and appreciated (or shall I say summed up?) the situation as follows:—"Dusk is falling. The Turks probably know I am here, know my strength and that I am expecting to be reinforced by that infernal Battalion of the 15th Regiment. They will expect me at least to await their arrival before I do anything. They know it is going to be a dark night and will not expect an attack until dawn. They will be posting their night outpost shortly. They know that my men are Cretan irregulars, who are formidable when well led, but of negligible value if badly led, I propose to make the Turk despise my leadership by making an abortive attack at once, and since such an attack will be a surprise for him I hope to induce him to reinforce his garrison on the hill in order to be forearmed against further attacks, however ill-

conceived. I realise that by inducing him to reinforce his garrison I shall have to deal with a larger force when I make my real attack, but at night mere numbers do not count for much whereas if he reinforces he will probably send across a senior officer to command the post, who will not have a chance of seeing the position by daylight and whose dispositions are not likely to be as good as that of the Company Commanders now in command up there."

You will notice in this appreciation the following factors.

Deception of the enemy.

Surprise.

Endeavouring to make the enemy miscalculate your own capacity.

In addition there is this clever device of trying to make the enemy change command during a period of darkness. This may usually be counted upon to create confusion and a lack of confidence on the part of outpost troops, combined with a totally unmerited sense of security on the part of the troops held in reserve, calculated to make this main body less alert and more susceptible. Now comes an ingenious method of providing the enemy with false information, *and getting him to believe it*. In the hearing of the peasant prisoners, Manos issued his orders to his five officers for an attack at 6 p. m. He then told the peasants they could go to their homes but lest they should none of them prove to be spies he told one of his Cretans to desert to the enemy and reveal his plans. It subsequently transpired that two of the peasants were in Turkish pay and they corroborated the statement of the supposed deserter and when the attack was subsequently made exactly as detailed by these three informers, the Turks not unnaturally placed confidence in all subsequent information given by them.

There was also another instance of finesse in this procedure for, as Manos remarked after he let the peasants go, "If any of those chaps go into the Turkish camp, the Turks will think me a pretty big fool to let them escape and will act accordingly"—which they did.

The attack was delivered punctually at six o'clock just as the moon was sinking. It was made in extended order and the men were instructed to fire wildly, prematurely, and to maintain no sort of formation but so far as possible to cause the impression that they were merely an undisciplined mob. They were not to go nearer than 400 yards to the enemy position and were to fall back after a little desultory firing. A small subsidiary attack made by 50 men, however, was to attack the position shown by the double headed arrow. Here they were to endeavour to surprise and overcome any enemy resistance with the object of passing six of their number through the enemy's outpost line. These men were specially selected and were given detailed instructions how to co-operate in the real attack which was to be made at 10 p. m.

Everything worked smoothly: the subsidiary attack got home and cut up a Turkish post of 12 men and passed six men through on to Manoliassa Hill without the knowledge of the Turks. The total Cretan casualties at this time were one man wounded and two slightly wounded. Manos then withdrew to "M" and fed his men. He was asked why he had refrained from taking the position when he might easily have done so. He replied that first of all he had been able to ascertain the positions of the Turks by the flash of the rifles. Secondly that had he taken the position at 6 p. m. he would be attacked by the whole Brigade either during the night or at dawn, when he had no chance of seeing the ground he was to hold by daylight; that he could not count on the arrival of the Battalion of regulars, that he hoped when he did attack to give the Turks such a shock that they would wait until full day to retaliate, and he hoped by then the Battalion of the 15th would have arrived and he would have time to inspect the position and make his dispositions by daylight.

About 8 p. m. it became clear that the Turks as anticipated were reinforcing their position. By 9 p. m. their outpost scheme had been located by scouts as shown by XXX on the sketch. At that hour Manos ordered several camp fires to be lit near "M" but in sight of the enemy, and detailed four men to walk about

constantly between the fires and the hill so as to create the impression that his bivouac was fully occupied. His three wounded men and one other were detailed for this camouflage job; the rest of his detachment marched silently as shown along this dotted line. The group sentries at "A" and "B" were killed at their posts silently and efficiently by means best known to the gentle Cretan and for five minutes all was suspense. Then suddenly at 10 p. m. flames were seen to burst out in Manoliassa village, accompanied by heavy firing. This was caused by the six men who had been pushed through in the six o'clock attack and had hidden themselves and started a fire in some outhouses in the village used for storing hay and straw. These men in a concealed position fired into the rear of the Turkish picket at "C", who retaliated by firing on the picket at "D". When this pretty little scrap had been got fairly going, about ten minutes past ten, Manos' entire detachment scaled the rocky hill between "A" and "B" and drove the picket in disorder through the burning village. The two companies reserve there were involved in the panic and in the light of the flaring, flimsy huts were shot to pieces at 50 yards range. By 10.30 p. m. there was not an unwounded Turk left on the hill and over 400 dead were counted next morning. It will be of interest to note the reason why Manos chose to attack from the north. First of all it was the last place where the Turks would expect an attack, since it was overlooked by their main camp at "Q" and it was also furthest from Manos's camp.

Manos then proceeded to picket the position, but he had hardly done so when the belated Greek Battalion arrived, having lost its way. The Battalion Commander then proceeded to change all the sentries and pickets without consulting Manos; the latter was not satisfied with the measures taken for security so he proceeded to withdraw his detachment to that part of the hill marked "C" and posted his own sentries and pickets for, as he remarked, "I am responsible for the safety of my own men". It was lucky he did so for just before dawn the Turks attacked and rushed the Battalion's posts at "D" and it was

only a counter charge delivered by the Cretans that restored the position. The Battalion had about 200 casualties, the Cretans had one killed and three wounded and the Turks left another 300 dead behind them when they retired. Their attack had been made with two Battalions, one in the firing line and one in support, but the supporting Battalion had lost touch in the dark and hardly came into the fight, merely acting as a rearguard when their other Battalion had been ejected from the position. With daylight came a fresh complication. The Officer Commanding the Greek Battalion failing to come to an arrangement with Manos as to who was to garrison Manoliassa and who was to proceed to point D, eventually decided to go there with his whole force. He sent back his wounded and at 10 a. m. set forth, leaving Manos with 300 men to hold a position in the face of 6000 infantry and 12 guns. Manos however won two concessions from him before he left. The first was that he should, so long as he was in sight of the enemy, march his Battalion in column of route, all four companies abreast so that the enemy (3 miles away) estimating the strength of the column by its length would be led to believe that about three companies still remained behind. The other was that some 50 headaddresses should be left behind. The Greek regulars wore a khaki kepi, somewhat similar to that worn by the French. These caps were used for camouflage purposes to encourage the Turks to believe that Manoliassa was still garrisoned by a large number of regular Greek troops.

Manos had now to face the problem of holding his position for 24 hours until the second Greek Division could be expected to arrive. I do not propose to detail the steps he took for defence by day, since no serious attack was made upon him until nightfall, although for several hours the three Turkish Battalions heavily shelled the hill with shrapnel without causing a single casualty. For the night, however, he made special arrangements. He decided that he could not hope to hold the whole position; he therefore concentrated his attention on the defence of the Northern section (E) which on two sides at least was protected

by almost unscaleable rocks. By dint of a stratagem which I will describe later he hoped to prevent the enemy from attempting to attack or capture the southwest position of the hill (C), but first I must draw a sketch more in detail of the northern position of the hill (see Map 2).

The shaded portions are an upright wall of rock some 40 feet high, the dotted line represents an old water culvert of masonry running down and joining the water tanks A. B. and C. The culvert is just scaleable throughout its length, the tanks themselves are some 50 feet by 50 feet and about 10 feet deep. Only the upper one (A) was in a state of repair and contained water but was blocked by masonry and was fed by a spring. The other tanks B and C were in a dilapidated and empty state but appeared to afford good places for secret concentration.

I should have mentioned that when the hill was first taken by the Cretans they secured about a dozen villagers amongst whom were found the two spies whom they originally took prisoners earlier in the afternoon, and also their own so called "deserter".

Manos, in the late afternoon, called another conference of his "officers" and proceeded to explain a bogus scheme of defence, but he took care to do it in a room next to where these prisoners were confined, taking good care that they should overhear it. Subsequently he pretended great anger and said that the prisoners would be shot at 6 p. m. to prevent them carrying what they had overheard to the enemy. His object in this was threefold.

1. To induce them to escape as soon as possible.
2. To get the Turks to attack about six o'clock *i.e.* before the Turks thought that the prisoners' escape had been noticed and Manos have time to alter his dispositions.
3. To impress upon the prisoners the reality of the plans they had overheard.

He then ordered the guard over the prisoners to allow them to escape, which they did about 4-30 p.m. The moon set at about 7 o'clock that night so that Manos calculated that



the Turks would have to attack between sunset and moonset, which would help him, although the moon was far from bright and the sky overcast.

His bogus plans were as follows:—"I intend to hold the south-western position of the hill in force. I consider the aqueduct unscaleable for troops and shall merely leave a group of three men at the bottom by tank C. I consider the northern position of the hill "E" practically impregnable and shall hold it with only 25 men and shall leave the village unoccupied, as it will be under fire from C and E". He also detailed the position of one or two sentry groups.

His real orders corresponded with the bogus ones so far as the group sentries were concerned so that the enemy's scouts would confirm the information given by the spies and the "deserter" all of whom they had reason to rely on owing to the correctness of their former information about the six o'clock attack the night before. On the other hand however, he concentrated the whole of the bulk of his force on the northern hill, and as shown he also mined the retaining masonry between tank "A" and the aqueduct. He hoped by this means not only to induce the enemy to attack at the hour but also at the place he himself (Manos that is) desired.

His hopes were amply justified. As night fell at 5-30, the Turks could be seen (and heard) moving cautiously across the plain. One Battalion moved to make a demonstration against the southern portion of the hill and when they opened fire were replied to by about 20 men in the southern hill, who fired with great rapidity and no aim so as to give a faulty impression of their numbers. The three men on sentry at tank "C" fled on the approach of the enemy along the dotted line as previously instructed and at 5.45 the Turks surprise attack began to work its way up the aqueduct. At about 6.20 the position was as follows. One Battalion in tank "C", one in tank "B" with scores of men in the aqueduct, one Battalion hiding in the huts in the lower slopes of the village, a fourth Battalion demonstrating against the southern hill, a fifth moving against the northern

slopes of the northern hill, half a Battalion in reserve on the plain and the remainder in camp.

So far, except for the musketry of the sham fighting (sham on both sides) on the southern hill, there was complete silence. The Turks imagined they were surprising their enemy. They were soon to be undeceived. As the first group of scrambling Turks reached the base of tank "A" the charge was detonated and a great wall of masonry ten feet by ten by ten was removed. And the whole volume of water in tank "A" rushed down the aqueduct in one irresistible cataract, carrying all before it. Nearly all of the men of the Battalion in the aqueduct and in tank "B" were killed immediately, being hurled down in the precipitous water spate, and a large majority of the Turks in the village were either drowned or hurled down the hillside by the overflow from tank "B". The Turks in tank "C" escaped more lightly, but judging subsequently by shoulder straps some 200 of them were drowned before they could escape from the death trap of the partly dilapidated tank. Within two or three minutes the Turkish survivors of these three Battalions were scrambling down the rocks seeking the open plain, hotly pursued by about 20 bloodthirsty Cretans, who had an orgy with their murderous knives and other cutlery. Manos himself leaving 150 men to garrison the hill (E) led 100 men along the line I have shown by arrows. They were mistaken in the dark for friends by the Turkish supports and it was not until they got within 20 yards of where these were lying down in close column of half companies that they were challenged. Manos replied in Turkish and led his men right on to the Turks, who were shot down at point blank range or bayoneted: the remainder bolted. Manos led his men forward (after 5 minutes slaughter) at a steady jog trot, and arrived hard on the heels of the fugitives at the Turkish camp, and it was only owing to the fact that about then the moon failed that the Turks were able to get away their guns up the pass. The camp fell into the hands of the Cretans after a short and bloody struggle. The two remaining Turkish Battalions still in position, who were ignorant

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of what had happened did not know what to make of it when they heard firing in their own camp, and after some little indecision retired. When they reached the vicinity of their old camp they were met by a very heavy fire from Manos in position there, and, not knowing what to make of the situation in the darkness, withdrew to the eastward and bivouacked some three miles away to await daylight. Manos continued to hold Manoliassa hill and the Turkish camp at the entrance to the valley. At dawn he was debating which of these two positions to hold when the vanguard of the second division arrived six hours ahead of scheduled time and relieved him of all further anxiety.

Several months later I was enabled to ascertain that the total strength of the Turkish Infantry Brigade was about 3,900 strong ; of these Manos accounted for 1,200 killed and 1,300 drowned. The Cretans never took any prisoners. He himself sustained a loss of 13 killed and 17 wounded. In conclusion, although I would like you to note the "stunts" employed by Manos, I particularly invite your attention to the way he "appreciated the situation", made the enemy "conform to his own initiative", and invariably acted by surprise, and yet Manos had never had the advantage of studying these things in text books. I would also ask you to admire the dashing manner in which he fearlessly counter-attacked a force immensely superior to himself with only 100 men. It may seem a hazardous and risky enterprise but he knew that he had broken the enemy's morale, and he did not shrink from seizing the psychological moment to drive home his reckless counter-attack, for he knew the truth that counter-attack is the very soul of the defensive and that a defence without a counter-attack is like an egg without salt. Manos might have taken for his motto that of the distinguished Frenchman "de l'audace et toujours de l'audace".

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## **BLAKE**

*(Extract from a biography.)*

BY

MAJOR E.G.S. TROTTER 2/9TH DELHI INFANTRY.

It may be of interest at the present time, more especially when the Commander-in-Chief of the British forces in France was himself a naval cadet before exchanging to the sister-service, and when one of the most celebrated British Field-M Marshals now living has had a glorious career on both sea and land, to read something of the history of Robert Blake.

His biography reads more like a romance than like a true tale.

It throws moreover a considerable light on the methods by which the British Empire was built up and should confound those who dream that we now should not fight to the end for land and liberty gained, and kept, by the life-blood of former generations, and illustrates in some measure what treatment England might expect were it overrun by an unscrupulous conqueror.

It illustrates that the blood which flowed in the veins of the unprincipled Rupert and Maurice of the Rhine was the same that flows in the veins of their equally unprincipled successors. It shows how in those days also the mighty hand of England, whilst relieving the oppressed, declined to support its subjects in outrages on foreign religions.

Robert Blake was the eldest of the 12 sons of Humphrey Blake of Plansfield and Bridgwater and was named Robert, in remembrance of his grandfather, a well known and respected merchant, who served many times as chief magistrate of Bridgwater.

The merchant of those days was not perhaps what is pictured by ourselves from novels of that period which we may have read. We perhaps picture him as a man of portly build, a "goodman" as one might say, busily employed on the one hand in looking after his ledgers, on the other with educating his apprentices. But in truth his calling was a very different one. Piracy in those days was considered as the career of a soldier

of fortune on the sea. The Civil wars had driven hundreds of distressed English gentlemen to seek their bread upon the seas.

Childrens' fire-side tales told of the exploits of the Greek and Biscayan free-booters and of the Moors of Africa, who in competition with the Salee rovers and the Tunisians and the Algerians raided the coasts of Christendom.

Sad it is to tell, but true, that whilst the Moors on the one hand waged war against the commerce of all civilised countries, the Knights of Malta on the other descended on the coasts of Africa to burn, to kill, and to seize women and children to be sold into slavery in the slave-markets of Venice, Seville, and Genoa, whilst the Moors sold their unfortunate victims in the bazaars of Tripoli, Tunis and Algiers.

Against these formidable pirates, the merchant had to trust solely to his own bold heart and steady hand and to his small but well-armed vessel.

For him danger lurked behind every rock and in every harbour. His every voyage teemed with adventures such as fed the mind of young Blake, at that time a silent and thoughtful lad.

Doubtless young Blake learned, whilst preparing for the University, something of the sea-faring life from his father's servants. It is said that he was an early riser, a hard worker, and especially fond of fishing and shooting, and, what is reported as untrue and is indeed hard to believe in the future sailor, that his taste for aquatic sport was limited to the catching of swans!

It was at this period of his life that the Warden of Merton College, a man with almost as great a love for men of great stature as Frederick with his grenadiers, rejected with contumely the budding candidate of five feet six for a vacancy in his college.

Doubtless the guardian angel of the English nation whispered in the ear of the worthy warden for, had young Blake been successful, there is little doubt that the liberties of the English people would have been put back some space of years. For he and he alone it was who retained Taunton in Puritan hands, whose

defence of Lyme outshone in heroism the feats of modern times, and but for whom the battle of Naseby would not have been fought, Tromp would have remained unconquered, Spain would have remained unscathed, and Tunis and Santa Cruz uncelebrated.

But Blake had also incurred the dislike of the Warden by his fearless adherence to Puritan sentiments as compared to papacy.

In character he was a quaint medley. His gravity was redeemed by a keen and passionate sense of humour. His tastes were simple, dignified, and refined. He was one born to command.

He had long been a stout opponent of the arbitrary measures of Charles, and when the Monarch raised his standard at Nottingham, Blake threw his influence forthwith into the opposite scale.

Besides this, he in person distinguished himself in the field at Bodmin and Lansdown, and when in a less troublous field he acted as a "Sequestrator of the Estates of the Delinquents" none of these unfortunate gentlemen were ever heard but to praise his impartiality. And in the field his superiority to others lay in the fertility, the energy, and the comprehensiveness of his military genius.

And the most marvellous part about the history of his career is the kaleidoscopic changes and the marvellous characters who follow one another through its pages, as wonderful as the characters in the pages of a child's book of fairy tales, and yet characters of real flesh and blood.

And who can imagine indeed a more wonderful prince in a child's fairy-tale than Prince Rupert of the Rhine.

Partly of Bohemian partly of English blood, his pedigree stretching back through Charlemagne to Attila he was connected by blood with half the reigning families in Europe.

He was born amidst the roar of the guns of an enemy seeking to dethrone his Mother the famous Queen of Hearts, and, snatched by his nurse from his cradle, was dropped by her on the floor of the palace in her agony and desperate haste, only to be

picked up by chance by a palace chamberlain, who flung him into the last carriage of the flying Court.

Then as he grew up he and his brother Maurice became literally wanderers on the face of the earth, to find at last an asylum in Holland, then at the zenith of its power. Thus at Leyden as a student ; at Rhyndberg as a soldier ; as a huntsman ; and as the winner of many tournaments, had he at the age of fifteen shown his worth as a man and as a soldier.

From Holland he visited England, and, having been dazzled by Laud with the offer of a Bishopric, by Queen Henrietta with the offer of the hand of a rich heiress, by his uncle Charles I with the offer of the viceroyalty of Madagascar, he determined to strike a blow for his own hand and, returning to Germany, attempted to recover his ancestral possessions on the Rhine. But he was defeated and imprisoned and, when after the space of three years he returned to England, the gay debonnaire youth had become a man with temper and passions inflamed by adversity. His uncle received him with open arms and nominated him Master of his horse.

As a soldier, in courage he had no equal, but his cold heart, his lust for money, and his ruthless cruelty, to say nothing of his rash impetuosity on the field of battle, caused him indeed to be the evil genius of his cause.

The King's arms at the time were in the ascendant, greatly owing to the surrender of Bristol by the chicken-hearted Fennes. Blake had protested fiercely, had denounced him as a traitor and had refused to surrender, even though Rupert threatened to hang him on the spot. Eventually however, deserted by his cowardly commander, he was obliged reluctantly to quit his position.

The loss of Bristol, Gainsburgh, and Lincoln, the defeats of Lansdown Heath, of Adderton Moor, and Chatham, had reduced the fortunes of the Roundheads to a low ebb, and, with the exception of London, the Associated Eastern Counties, and a few isolated towns, the country was in the hands of Charles. Liberty was in its last throes and one more decisive victory might have put an end to constitutions and Parliament in England for many

years. Had Rupert's advice been followed and had the King marched on London, the civil war might well have ended. But the King called a council of war, a nearly always fatal step, and delayed in order to attack Gloucester. The delay was fatal. The trained bands of London with Essex's levies marched on Gloucester, and there fought the indecisive battle of Newbury.

Blake meanwhile after his gallant stand at Bristol had been given the command of Popham's regiment, the finest militia in the country, fifteen hundred strong, well equipped, and firmly attached to Roundhead principles. He at once marched on Bridgwater his birthplace, but foiled here turned towards Lyme. On the march alas his gallant but imprudent favourite younger brother Sam had been killed in an imprudent quarrel with two royalist officers. When after much hesitation the news was broken to Blake he merely said "Sam had no business to be there." But, when he arrived at his head-quarters he shut himself up in a room and gave way to the calls of brotherly love saying "Died Abner as a fool dieth." But he was not known again to bewail his brother's untimely death, the only one of his brothers who resembled him in the dauntless intrepidity of his character.

His mind was indeed diverted to sterner thoughts. He was now engaged in the defence of Lyme, a defence which possibly, with that of Taunton, changed the whole history of the Civil War and largely assisted in the consolidation of the liberties of the English people.

Maurice, the gallant brother of Prince Rupert, commanded the King's armies in the west and in his rapid and triumphant march swept the country from the Severn to the sea. Exeter, Barnstaple, and Dartmouth had fallen. Plymouth indeed held out, but, with the exception of insignificant places like Poole and Lyme, was the only centre of influence still retained by the Roundheads.

Maurice left a force to blockade Plymouth and with a force of some twenty thousand men marched on Lyme, a small fishing village of nine hundred or so inhabitants.

The defences of Lyme consisted of a dry ditch, a few earthworks hastily thrown up, and three small batteries; Davies' fort standing a little above Church Cliffs on high ground looking to-



wards Uplyme, but which has long since fallen into the sea ; Green Cliff and the fort at Cobb Gate, and two land batteries on the sea-shore, covering the bay, but of little use against an enemy making his attack from the hills.

Its road-stead swarmed with small vessels, the property of London merchants, which offered a good prize to the royalists.

The Civil Governor had also proved himself a gallant soldier, but he gave the entire direction and responsibility of the defence to Blake. Blake's forces consisted of five hundred men and a body of half-drilled volunteers from neighbouring villages, the townspeople affording him little assistance. Earthworks were hastily thrown up to connect the various points of defence, two large houses were occupied as outposts, and foraging parties were sent in all directions. Whilst the defences were in progress the royal army suddenly appeared above the brow of Uplyme Hill.

The magnificent view therefrom touched some chord of sentiment and the Cavalier host rent the air with a loud shout of surprise and admiration.

In the evening Maurice descended into the valley, drove in the outposts and summoned Blake to surrender.

The summons was met by a haughty defiance and the Prince sounded the general charge, followed by a simultaneous attack of infantry with hand-grenades accompanied by cavalry. The cavalry and infantry attack were both defeated by the unwavering and deadly fire of the defence, and, though Maurice himself ran into the fray, and indeed fired into the backs of his men, to force them on, it was of no avail. His line, faced by case-shot, staggered, broke and fled.

Maurice then sat down to a regular siege and planted his siege-artillery, and for more than 8 weeks the fine army lay on the slopes over Lyme, baffled by a handful of men and mud ramparts.

The Court at Oxford could not believe its senses, and Maurice in his utter humiliation sacrificed his men like a prodigal to ensure success. But storm, stratagem, and blockade made no impression although the Cavaliers fought with the

utmost gallantry, and, after the siege was raised, the royalists found to their surprise and horror that more men of gentle blood had fallen under Blake's fire at Lyme, than had fallen in the western counties since the beginning of the war.

Little wonder that Maurice had stamped his foot and gnashed his teeth and exclaimed "Why did Rupert not hang Blake at Bristol?"

The garrison now raised to a thousand men, though many of them originally unused to arms and discipline, had emerged from the stern fight as almost veteran soldiers. They were without pay and with little food and many indeed could not boast of a full suit of clothes. Yet, whilst by the men no murmur was heard, the women tended the sick and wounded, worked at the entrenchments, loaded the landoliers with powder and shot, and even fired on the enemy. One heroine stood in the ranks during the whole time of a furious attempt to storm, and fired sixteen rounds of shot at the enemy's columns.

Thus they fought for the right and for freedom as we fight this day!

To demonstrate the glorious defence made by the garrison it may be said that Maurice's batteries gradually silenced the little forts of the town. Cobb Gate had been destroyed. Many houses in the town had been rendered untenable, those on the hill-side near the road to Sidmouth had been totally destroyed, hand-grenades were picked up at every yard, but not an inch of the line had been won. Even when after a lull of 6 days whilst the towns-people were rescuing their boats from a gale, and the soldiers were at supper, the Royalists concealed by a thicket forced the entrenchments, and marched on the market square, the defenders, flying to arms, merely closed behind them, and, cut off in the fray, the enemy which had gained the town perished almost to a man, whilst the remainder were driven off leaving behind them a vast supply of arms and munitions.

Col. Blewett one of the best soldiers of the Royal Camp died that night. He had but joined the day before and had been

told by the Generals "that it was a mere breakfast matter and that the town would be carried before they dined."

Next morning Maurice sent to beg for the body of his friend Blewett but when Blake asked in return for a prisoner, a non-combatant, a Mr. Harvey, to be released in lieu, Maurice refused saying that "You may keep the body of the the late Colonel if you please." Blake then indignantly had the coffin, in which the corpse had been tenderly placed, carried to the line and signalled to the heralds to come for it. "Have you" said he scornfully, as the men approached "have you any command to pay for the shroud and the coffin." They answered "No." Curling his fine black whiskers with his finger, as was his habit when in anger, he added with superb disdain "Nevertheless take them; we are not so poor but we can give them to you."

But meantime Blake was hard pressed and many were his appeals for succour. He lacked provisions and munitions and his little garrison was thinned by death and sickness. But he yet had the hardihood to lure a large body of Cavaliers into the town, where, ambuscaded, those who did not fall laid down their arms.

During the parley that ensued when a royalist officer pointed out the weakness of his works and that they must soon be captured: "Tell the Prince" said he "that if he will come to fight we will pull down ten or twelve yards, so that he may come in with ten men abreast and we will fight him"

— But in spite of his bold words a crisis was at hand, and if no succour were nigh the garrison would have to surrender from starvation or cut its way out.

But succour was near and the Earl of Warwick shortly arrived with some provisions and stores.

So shocked were the generous sailors to see the miserable and destitute state of the heroic garrison that they gave up half their own garments and food to them and indeed proposed to the Commissariat to give up 9000 lbs in weight of their bread during the next 4 months—for the defenders.

Meanwhile Maurice had attempted by a sudden assault to forestall Essex and, though the Cavaliers were defeated, Blake lost

his master of horse Colonel Drew, one of his best officers, and he himself was wounded in the foot and limped for ever after.

Amongst the Cavaliers was killed the gallant Captain South-ern who for a freak had dressed himself in the armour of Lord Powlett, hated by the people of Lyme.

Whilst Pyne who had done so much for the defence was being buried with military honours, the Royalists took advantage of the occasion, and commenced one of their most violent cannonades combined with an infantry attack. But the outraged Roundheads met the attacking parties with the fury of demons and they were signally defeated, though with great loss to the defenders.

Unperturbed by the above, Blake arranged a plan with Warwick for the next day's operations and secretly landed three hundred men from the ship

The fleet meanwhile weighed anchor and Maurice fell into the trap prepared for him. He made a grand and final attempt to storm the place. Three thousand men were chosen as a forlorn hope arranged in 3 columns to support each other. But the first and second columns were defeated and retired and, when finally the 3rd column was cut through, the enemy fled in disorder.

Maurice had made his last effort and failed, for Essex was now advancing with a large army, and, in his rage and fury, he fired into the town as a parting salute a quantity of redhot balls and twisted lead. The Cavaliers had indeed lost 2000 men in the memorable siege to say nothing of time, moral influence, and military prestige.

But an even fiercer scene in the great drama was about to take place and that was the defence of Taunton, held by Blake for several months against far superior forces well provided with artillery, thus paralyzing the King's Army and affording Cromwell time to re-model the army. In some respects Taunton was more defensible than Lyme; only 3 entrances led into the town and it was not surrounded by heights and public buildings. But it lacked sea-communication, had no walls, and was open on every side. The castle indeed was an important position with its wall, moat

and drawbridges. Blake was however the first who had ever thought of holding it against superior forces. He made what preparations he could but when everything had been done the situation seemed most precarious. The Cavaliers indeed thought Blake to be mad. They knew he had no supporting base of operations, no supporting flanks, scanty supplies, and little hope of aid till the new army were created, drilled, and disciplined.

But he received Col. Wyndham's call to surrender with disdain and after a preliminary defeat a blockade was determined on. In spite of desperate sallies the provisions of the garrison dwindled and the hope of succour seemed desperate, when a gallant German officer named Vandruske fell with a body of horse on Wyndham's line and in the panic thus created, Blake pursued the panic-stricken foe and attended by Vandruske's horse made a circuit of the country. Revived by Blake's prowess Weymouth was retaken.

The defeated Royalist forces now commanded by Goring gave a realistic spectacle of what would happen if the country fell under the royal rule.

The country was pillaged, women were insulted, and houses and villages were deserted at their approach. Drunkenness and debauchery marked their course, shame, misery, desolation followed in their track. The less warlike of the population fled to Taunton and the pious and gentle Thomas Welman, vicar of Luppit near Honiton, and who afterwards proved singularly useful during its long defence, raised the patriotic ardour of the garrison by his tales of rapine, cruelty, and profligacy. But more valuable still was the continued defence. It had created dissension in the Royalist forces and Cromwell's and Waller's forces were enabled to join each other.

Meanwhile the Royalists' bickerings continued. Grenville, now occupying the trenches before Taunton refused to vacate them till it was taken, even though a pitched battle was imminent and the Prince of Wales had intervened. He obstinately said that he had solemnly promised the Commissioners of Cornwall and Devon not to advance beyond Taunton until he could advance through it. The Prince held a council of war and even in spite of his orders Grenville refused to move.

It was finally decided to reduce the town.

Wyndham and his regiment were there and the whole of Goring's foot and his large park of artillery. But Grenville whilst reconnoitring was severely wounded and Sir John Berkeley succeeded to the command. The investing lines were drawn closer, the suburbs burnt, streets and lanes battered down. Berkeley stormed and set fire to Wellington House thinking it would affect the garrison, but Blake's only reply to such wanton barbarity was to order the joy-bells of St. Mary's to ring out a merry peal. But without regular walls and with insufficient artillery Blake daily saw his ranks grow thinner. Bread and beer were already more than twenty times their market-value, and knowing the privations of the garrison Berkeley invited Blake to surrender to the king rather than to die of hunger. Blake replied that he had not yet eaten his boots and, it is said, had the only remaining hog whipped all over the town so that the enemy might think he had fresh supplies.

But meantime he wrote frequent and urgent letters to London for relief and begged the House to consider the town's distress.

Meanwhile the town was gradually consumed by cannon-shots and fires. Sometimes eight or ten houses were burning at the same time, and in the midst of all this Blake and his little garrison had to meet the storming parties of a brave enemy ten times their own strength.

The rage of the Royalists indeed knew no bounds at the prolonged resistance. Even the Prince of Wales came to encourage his men. It was resolved to bring an extra eight thousand men to besiege the place. But Taunton did not fall, the model Army was now fit to take the field, and when, after weighty consultations, the word for Taunton was given the soldiers started with a burst of enthusiasm which shortened the journey several days. For an entire week the men refused to take an hour's repose and they were already among the Cavalier tents in Dorsetshire before it was heard that they had departed from London.

Colonel Weldon was sent to relieve Taunton and volunteers joining him all the way especially the whole garrison of Lyme, eager to support their old chief, he by forced marches advanced on the Royalist forces. Berkeley now attempted a clever ruse and splitting his army into two arranged a mimic battle between the two forces. But Blake was too clever to be lured out of his defences and then in his rage Berkeley prepared a final assault. But it was of no avail and the Royalists were severely repulsed. Meanwhile the signal guns of Weldon's relieving forces were heard and the intelligence spreading through the town rapidly revived hope and drove away despair.

When the morning dawned, news was brought that the Cavaliers were in full retreat and Blake's patrols confirmed the news, stating that in their haste they had left much arms, ammunition and camp-furniture behind them.

When Blake was assured that the retreat was not a mere feint he made a sortie and falling on the rear-guard and stragglers put them to rout.

The retirement of the enemy after so long and so fierce a siege produced a powerful reaction on the inhabitants of Taunton who flew to St. Mary's to return thanks, many gasping out "Deliverance! Deliverance!" A squadron of Weldon's horse had meanwhile reached the town unopposed, the main body arriving; in the afternoon.

The aspect of the town and its heroic defenders filled the rough soldiers, inured as they were to sieges and battles, with wonder and pity. More than a third part of the houses had been battered down and both garrison and inhabitants were dying of hunger in the streets. Weary as they were, the relief party refused to touch a morsel of the still remaining provisions and returned that very night to Chard.

When Parliament learned of the happy event, bonfires were made in London, a day of general celebration was appointed and Governor, garrison, and people, were all lauded in high terms for having held the town for so long against such overwhelming numbers.

Two thousand pounds were voted to the soldiers and five hundred pounds to Blake as a testament to his genius and devotion. But its sufferings were not yet ended. Goring's crew still overran Somerset and raped, robbed, and murdered, whilst Goring, more skilful than the impetuous Weldon, defeated him and once again invested Taunton. He boasted indeed that he could easily take it. But the spirit of the garrison remained unbroken. One day by way of insult Goring sent a poor fellow into the town, dressed in rags with a battered drum, to demand an exchange of prisoners. Blake expressed a superb contempt for the miserable insulter—not by hanging the poor drummer, but by dressing him in a new suit of clothes and setting all the prisoners free without ransom or condition. But the battle of Naseby had now practically ended the war and Goring withdrew his forces.

The town now presented a most deplorable aspect. For miles around the country was a desert. The corn had been cut down, green fruit trees destroyed in mere wantonness, barns and mills were emptied of their contents and farm-houses ransacked and burnt, the peasants and farmers driven with insult and violence from their homesteads. The relieving army noticed with horror that, between St. Nicholas and Taunton, they marched for half a day without seeing a single human creature or one single human habitation standing in the most populous and wealthy district of provincial England. The town itself had suffered so much that though Blake had the proud satisfaction of feeling that he had kept his ground yet he was master of little more than a heap of rubbish.

But the heroic sufferings of the people were not forgotten and the two Houses issued warrants for a general collection on behalf of the ruined citizens.

Blake meanwhile continued to live at Taunton quietly doing his duty, whilst other men with less than half his claims were asking for and obtained the highest honours and rewards from a grateful and lavish country.

As regards his political opinions it is certain that he had no desire to maintain Charles on the throne and his one wish was to



obtain a firm and lasting settlement of religion and public quiet. He even wished to see the king deposed and banished. But he deprecated even the appearance of illegality and violence and, when he found that Cromwell and his party were bent on the king's trial and execution, he loudly expressed his discontent with their proceedings, and under the influence of his humane convictions declared openly that he would as freely venture his life to save the king as ever he had done to serve the Parliament.

But this attitude on the part of Blake rendered him an object of continual jealousy and suspicion to Cromwell and his friends, who, before they dared to bring the king to trial disbanded the greater part of Blake's forces, Parliament glossing over the act by giving him its thanks for his services and by a further donation of £500. Blake obeyed the orders without a word of remonstrance.

To remove still further so dangerous a foe, Blake was now appointed to the chief naval command, which opened up a new and most brilliant era in the history of the British navy.

The affairs of the Stuarts indeed were now at the lowest ebb. Their ships were without stores and ammunition, their unpaid crews were in a state of mutiny. Here once more the gallant if unfortunate Rupert stepped upon the scene and was nominated to the chief command of the royal naval forces.

Who can imagine a more unique spectacle than that of the two great opponents on land now meeting each other on sea each in supreme command of their respective sea-forces. Rupert now showed the German blood in his veins by his actions. He became a corsair in the very worst sense of the word. Once out at sea he threw off every restraint imposed on man by natural and international laws. No flag afforded its bearer protection. He attacked, captured, and spoiled ships of every nation, and thus wronged and insulted the very states which were inclined to his uncle's cause. Holland which had given him an asylum suffered most of all from his raids. Against his courage, fertility of resource, and brilliancy of execution none could stand, hence Blake was summoned to oppose him and assumed the

chief command under the somewhat strange title of General and Admiral at Sea, or, as he was later styled "General of the Fleet." He was associated in the command with Colonels Popham and Deane. The Parliamentary fleet was in as bad a condition as that of Charles. Abuses of the most flagrant character existed everywhere. But the three Colonels were also appointed Commissioners of the Navy with seats at the Admiralty board, and were given the fullest powers for reorganizing the navy, in order to drive Rupert and Maurice from the high seas and in conjunction with Cromwell to quell the rising in Ireland.

Consequent on the king's removal the Union Jack was now replaced by a red cross on a white ground.

The new Commissioners found the state of the navy to be worse than they feared but reforms were soon effected. Indeed Blake's letters show how careful he was for the comfort and welfare of his men. Fearless himself, he feared but for the lives health and comfort of others. He would even weaken his force to spare ships to send home the wounded. No wonder that he was adored by his men. At the age of 50 he assumed the chief command, the right to which till his death was never disputed. Of him all men spoke well. The common sailors regarded him with an enthusiasm bordering on idolatry; the veteran admirals against whom he fought considered him the perfect model of a mighty foe; even the country gentlemen of England esteemed his character, and he alone escaped from the abuse heaped on men even like Vane and Hampden.

His hands were unfettered as regards his command. He was given no instructions to control his movements, but his general instructions were, to uphold the interests and the honour of England, to destroy the revolted fleet, to protect British trade and citizens abroad and humble the enemies of England.

And they were many. France, Spain, Holland, Tuscany, and Portugal were all avowedly in favour of the Prince of Wales. But Blake exercised his powers in a masterly and successful fashion. In the face of any event he merely asked himself "Is this for the honour and interest of England?" and settled the

question. There was no looking backwards or forwards, to the right or the left, antecedents or consequences.

That his views were sound and his methods also is shown by the fact that after 20 months' absence he destroyed the revolted, read significant lessons to Portugal, France, and Spain, freed the southern seas from privateers, and taught Italy and the Moors, Venice and Genoa, to fear the name of the Commonwealth. He was received on his return with acclamation. He was created warden of the Cinque Ports and Parliament voted him its thanks and a thousand pounds. The country rang with the renown of the man who had revived the glorious traditions of the English navy and exercised so perilous a power with such wisdom, resolution and success. He insisted on abuses in the navy being remedied; at Londonderry the fleet were on half allowances, and the provisions stank, whilst at Liverpool the fleet had been out eighteen months and the men had no pay to get even clothing with! These abuses Blake remedied.

Blake was now nominated a member of the Council of State. In fact his list of offices was extraordinary. He was a Commissioner for sequestrating estates Delinquents, a Commissioner for purging the Ministry of improper persons, and a Commissioner of the Admiralty, and also a member of the House of Commons. He was also appointed sole General-at-Sea for the ensuing year. But he yet found time to hear the complaints of the seamen and to rectify their grievances. It was at the time the dream of the English Republicans to form the Commonwealth and Holland into one mighty Protestant State. The Dutch were then the greatest naval power in the world, and their wealth, energy and valour gave promise of indefinite expansion. Holland's amalgamation with England would have created a force capable of combatting all the other continental powers. But this splendid conception was opposed by commercial jealousies and dynastic interests. The heir to the deceased Prince of Orange was not yet born and the Dutch democrats abolished the office of Stadholder and restored the republican government. Oliver St. John was sent to form an offensive and defensive alliance. But the Dutch would only temporise, fearing to commit themselves till

the result of the royal invasion of Scotland could be known, and the haughty St. John eventually took his leave, war between the two countries raging in his heart.

Even before war had been declared however the Dutch Admiral appeared in the Downs. Blake immediately sailed with all his fleet, but Tromp, although signalled to, thrice refused to lower his flag, or offer any apology for his act of defiance. The Dutch had forty-two men of war, Blake but fifteen. But even then Blake ignored the enemy's menace and alone in his flag-ship advanced to demand from Van Tromp a recognition of the Parliamentary flag. But the Dutch flag-ship in reply sent a broadside into the "James". Blake and several of his officers were in the cabin when the broadside came smashing the glass and severely damaging the stern. He lifted his eyes from his papers and coolly observed "Well, it is not very civil in Van Tromp to take my flag-ship for a brothel and break my windows." At the second broadside he curled his black whiskers round his fingers, as he always did in anger, and returned the fire, and in a short time the action became general. The flag-ship bore the brunt of the action. Seventy cannon-balls were lodged in its hull. The masts and rigging were blown away. The master and several officers died at Blake's side. For four hours the shot of the enemy flew around him. But he maintained the battle until Bourne and his eight vessels arrived on the scene, when Van Tromp retired. At dawn next day no enemy could be seen in the Channel. Two Dutch ships and two hundred and fifty prisoners were taken.

The sudden encounter of this powerful fleet in the midst of peace produced an extraordinary sensation in England and Holland. The mob shouted treachery and attempted unsuccessfully to burn the house of the Dutch ambassador. The Dutch in vain tried to explain away their insulting unexpected attack. They apologized in vain. They even offered to disgrace their Admiral. But the Parliament refused to listen and said its duty was to seek reparation for the past and security for the future. All efforts to reconcile the two powers were in vain.

Blake now exerted himself to the utmost. He captured the Dutch merchant-men at one swoop, and a convoy of ~~twentysix~~ others, including three men-of-war. The Dutch were panic-stricken, and the Council, stirred by his success, added forty sail and six fire-ships to the fleet, strengthened Dover pier, raised the seamen's pay, and summoned all mariners between fifteen and twenty to the service of State. They further promised to raise the strength of the fleet to 250 sail and 14 fire-ships. But though these promises were not fulfilled yet Blake had under his command 105 vessels carrying 3961 guns. But his constant cry was Seamen, Soldiers! Finally two regiments of foot were taken on board bodily and originated the marines."

The Dutch preparations were also made on the grandest scale, and in a few weeks their renowned Admiral, ripe in age, honours, and experience, saw himself at the head of 120 sail, a force sufficient in the opinion of every patriotic Dutchman to sweep the English navy from the face of the earth. On the 21st day of June Blake fired his parting salute in the Dover roads. So awful a burst of cannon had not been heard by the inhabitants of Kent since the days of the Armada.

Two days later despatches left Westminster in hot haste to recall Blake, saying that the Dutch admiral with all his fleet was in the Downs. But he had meanwhile accomplished one of the three great objects of the expedition for, meeting the great Dutch herring-fleet off Brockness, convoyed by twelve men of war, he sank three, and captured the others and the six hundred herring-busses. But as the latter belonged to poor families, whose entire means of life they were, he merely took every tenth herring as a royalty and, warning the men not to fish again in British creeks and islands, let them go home.

This act of clemency was severely censured by many. The politicians said that if the fish were of no use to the fleet they should have been thrown into the sea. He answered "that they were human food and thousands would suffer and none gain by their destruction." Blake's was indeed a happy fate:- the only fault ever advanced by friend or foe against his public life was an excess of generosity towards his vanquished enemies.

Can one imagine the action of a Rupert or a Maurice in such a case!

Towards evening the two fleets sighted one another and Blake strove to engage. But the elements intervened and the fiercest of mortal passions were stilled in a moment before the awful demonstration of nature. "The fleet" says the Dutch writer Cornelius Tromp "was buried in the most terrible abysses, to be tossed up to the clouds, and on every side appeared all the dreadful forerunners of a dismal wreck. The darkness, danger, and distance from land filled the imagination of the sailors with horror. The storm raged through the night and the Dutch suffered terribly. More than one of the frigates and three of the fire-ships had been dashed on the rocks. The Dutch fleet was scattered beyond recall. But Blake running before the storm had been fortunate enough to keep his whole fleet intact and he pursued the miserable remnant, 42 sail, of Tromp's squadron, and when it sought refuge in Scheveling, he ravaged and insulted the Dutch coasts from Wadden to Zealand, and then ran across to Yarmouth with his prizes and nine hundred prisoners.

But the States-General undismayed prepared another large and gallant fleet and placed it under the renowned admiral De Witt, whilst the mob heaped insults on the veteran Tromp, who, in a fit of disgust, laid down his commission. De Reuter also endeavoured to do so but was over-persuaded and he joined De Witt who took the supreme command. The opposing fleets were now of about the same strength and on sighting the Dutch Blake signalled to attack. The Dutch fleet however was in no good order. Its leaders were disunited. Apathy, intrigue, and discontent were on every deck. The Brederode, Tromp's old flag-ship, would not even allow De Witt to board her, and several other ships refused to obey his orders. However De Witt refused to retreat before the presumptuous islanders, and the two fleets came into collision. For more than an hour the roar of artillery was incessant and eventually the Dutch fell back and continued the battle till night fall. They had suffered most severely in men, the English in masts and rigging. The most experienced admirals in both fleets were of opinion that De Witt could

not have held out an hour longer without being entirely broken and annihilated. Holland was in fact unmistakeably worsted. Two of his ships were sunk and two others had been taken, and to add to De Witt's troubles twenty of his captains fled by night and conveyed news of the disaster to Zealand. Meanwhile Blake had repaired his ships and the next morning he chased the remnants of the Dutch fleet into the shallows of the Goree.

Nothing could exceed the avidity with which the reports of the battle of the North Foreland were read in London. It was the first great naval action which the nation had fought since the reign of Elizabeth. Hitherto, Tromp, Evertz, and de Reuter had been regarded as invincible. Yet an English land-officer with but 3 years experience of the sea had defeated those who in their turn had swept the imperial navies of Spain from the face of the ocean. Blake's victory over de Reuter and De Witt had in fact raised him into the highest rank of living Admirals.

Blake now made the usual winter dispersal of his fleet, severe weather now having set in, whilst the Dutch took advantage of the same to commence the construction of another huge armament. Tromp's energy and influence had inspired an extraordinary degree of activity into all the marine departments of Holland, which, in an incredibly short space of time, had fitted out and manned a vast fleet. In fact Tromp took Blake by surprise, and quite unexpectedly appeared off the Goodwin Sands with more than a hundred sail of the line, frigates, and fire-ships. He intended to close up the Thames, cut off reinforcements from Chatham or the Lea, and to fall on Blake's own little squadron like an avalanche, and either crush it, or drive it down the Channel towards Land's End, and then, with the entire coast at his mercy, dictate peace to the Commonwealth on his own terms. Blake meanwhile had removed his pennant to the "*Triumph*". A council of war was called on board the *Triumph* and Blake in spite of the present superiority of the enemy declared his resolution to fight. The captains accepted the decision with alacrity and at 3 in the afternoon Tromp made a sudden effort to get alongside the British Admiral at a disadvantage but failed, and, instead

found himself engaged by the *Garland* and *Bonaventure*, two ships of sixty eight and thirty guns respectively.

The Dutch admiral was now in peril but Evertz came to his rescue and engaged the *Bonaventure*. The gallant little merchantman was thus between the fire of two powerful admirals. The English held out manfully but were outnumbered by men and weight of metal, and, of two hundred men on board the *Garland*, the Captain and sixty men were killed, and many more wounded, whilst the *Bonaventure* had suffered in an equal degree. The Dutchman then boarded and captured them. Meanwhile the *Triumph*, *Vanguard* and *Victory* were engaged with no less than twenty of the enemy, but just at dusk Blake shook them off and gave orders to Verrier to recover the captives. But he was intercepted, and his ship was surrounded. Three times it was boarded and the boarders driven back. But the flag-ship was reduced to a wreck. The top mast was shot away, the mainstay was gone, the sails and tackle were in ribbons. The hull was shattered and pierced. The wonder was how she could float, and, had it not been for the *Vanguard* and *Sapphire* which stood by her with unwavering steadiness and devotion, the English admiral must have fallen before such overwhelming numbers. Thick fog and December darkness put an end to the fight and Blake at once put into the Sea-road to repair his damages and to recall his dispersed squadrons. But the Dutch losses had been heavy. One of the vessels had been blown into the air, *Tromp's* and *De Reuter's* ships had been put out of action and many others had been seriously damaged. However for the moment they were masters of the Channel. There seem to have been two principal causes of the disaster, the first and last that England experienced under Blake's command. First of course the overwhelming superiority of force of *Tromp*; secondly the cowardice manifested at a critical time by several Captains of Blake's fleet. Had all the ships behaved like the *Garland* and *Bonaventure* the result would probably have been other than it was. Blake in fact determined to put an end to such a state of



things and demanded an enquiry, at the same time tendering his resignation. But he found that misfortunes which might have ruined another had given him strength and influence in the country. The Council wrote by return of courier, thanking him for his gallant conduct in the late action, and immediately sent to enquire into the misconduct of certain officers, and into the general state of the fleet. As a result Deane and Monk were ordered to hold themselves in readiness to go on board. All cruisers were ordered to join the rendezvous. It was resolved to raise the marine forces to 30, 000 men, and Blake was given a free hand to act as he pleased.

Curiously enough, Blake's defeat gave him power to effect many of the desired reforms, the most important of which was that all captains and other superior officers were in future to receive their appointments from the state. Under the old system there is little doubt that many of the captains were not only useless but that many of them were nominees of the Stuarts and traitors to the Parliamentary cause.

As a result of the Parliamentary enquiry Blake's own secretary was cashiered. Several captains were put under arrest, and he even broke his own brother Benjamin, and sent him ashore, thus silencing every malicious tongue.

Tromp meanwhile rode up and down the Channel with a broom at his mast-head and the States General had the assurance to declare that the British Isles were in a state of blockade. Many were the jokes in Holland regarding the names of the "Garland" and "Bonaventure" the captured ships. They even contemplated a descent on Jersey and Guernsey. But on the 8th of February Blake sailed from Queensborough, the "Triumph" still being his flag-ship. His fleet numbered eighty men of war and frigates with twelve hundred soldiers on board. He had in fact stolen a march on Tromp, who had gone southwards to convoy out a large fleet of merchantmen, and he only turned Cape la Hogue to meet the English burning to avenge the insult of his broom. Confident however, he eagerly gave battle, and even sent the convoy out of range to witness his victory. It

was really the first time the two fleets had met on equal terms. Blake, Deane, Penn, Lawson were on the one side; Tromp, Evertz, De Reuter on the other. The battle speedily became general and on both sides the wreck was awful. One minute the English boarded a Dutch man-of-war, the next moment they were flung back. Many ships were on fire, others sank with all hands. The roar of the artillery could be heard along the shores of the Channel from Boulogne to Portland. De Reuter himself boarded the *Prosperous*, a merchantman of fifty guns commanded by Captain Barker and took him and his officers prisoners. But Blake came to their assistance. De Reuter himself was surrounded. Admiral Evertz hastened to his assistance and in the melee Penn's ship was put out of action, the gallant Dutchman *Kruick's* vessel was shot to pieces, and was found the next day floating but with not a living soul on board, and Swers was taken prisoner, whilst De Pert, though writhing on his back in agony from a splinter wound; continued to flourish his hangar till he and his crew went down. The Dutch cannonade was in fact no match for that of British, and Blake was able to detach some swift ships to try and capture the convoy. Tromp seeing this fell back, and many of his captains fled. Blake remained master of the situation, though too exhausted to pursue at night in mid-winter. Heroic valour had characterised the officers and men on both sides. The Dutch had eight men-of-war taken and destroyed. The English had had several ships captured but all were retaken. Our only loss was the *Sampson*, whose brave commander and nearly all her crew were slain, and the vessel being unseaworthy was abandoned.

No ship, besides she, had suffered so severely as the flag-ship. Her captain and new secretary and half the crew were killed. Blake himself was wounded in the thigh.

When night came on Blake sent his wounded on shore to the well-prepared hospitals, where all vied to promote their comfort and recovery. Blake himself refused to be treated on shore and made every effort to repair his ships. At dawn Tromp

...the British squadron once more  
...within half musket range of  
...prepared themselves for a  
...the flagship St. George, divine  
...in an extremely solemn  
...The music then began. Nine men-of-  
...as they could float  
...the batteries as they could float  
...were answered by  
...of large calibre, for  
...volumes of  
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Now, under Cromwell's direct orders, he sailed towards Gibraltar, where an extremely characteristic incident occurred. Some sailors, whilst rambling about the town, suddenly came upon a procession of priests carrying a Host through the streets, and instead of falling on their knees before the sacred symbol, like the pious Spaniards, the Puritan seamen laughed at and derided those who did so, until their want of reverence provoked one of the clergy to call on the populace to avenge the insult aimed at their religion. A street fight ensued, and, with advantages of numbers and local knowledge on their side, the Malagayans beat the scoffers back to their ships, whither they carried an English version of the fray to their commander. Indignation and true policy concurred in inducing Blake to treat the affair gravely. In Lisbon, Venice, and other Catholic ports, mob-law had been applied to the sailors of English merchant-

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The enthusiasm in London at the news of the victory was unbounded. Special letters of thanks and congratulation were written. A day of special thanksgiving was appointed, and subscriptions were raised for the wives and children of the fallen, for whom the State also made provision. Blake meanwhile refitted the fleet and, in order to meet Tromp, who was collecting another large fleet, sailed for the Texel. The Dutch fleet managed to avoid him and later to unite and met part of the British fleet led by Penn and Lawson. The British gained a signal victory. Tromp received a ball through the heart and his captains fled, pursued by the ruthless Monk; the contest became a massacre rather than a battle.

The States-General now thoroughly humbled sued for peace, and a treaty was made by which they conceded to England the

honour of the flag, banished the royal exiles, compensated the East Indian Company for its losses, settled a sum of money on the victims of the Amboyna massacre, and made amends to the English traders who had suffered in the Baltic. The Hollanders themselves admitted that in the two years fighting they had lost more than eleven hundred vessels and spent more money than in the twenty years war with Spain.

Honours and decorations awaited the victors in England. Two gold chains the value of £300 each were presented to Blake and Monk; two others of £100 each to Penn and Lawson, four of £40 to the four flag officers. Penn was raised to the rank of Sea-General, Lawson to that of Vice-Admiral. £1040 was voted for the captains, officers, and men. Bonfires were lighted on all conspicuous places and especially on Tower Hill.

But amidst all the rejoicing Blake lay ill of fever, only to rise from his sick bed, still suffering and lamed for life by his late wound, in order to hasten the signing of the treaty between England and Holland. The Dutch war in fact he had never liked, and, whilst he loathed the Spaniards as children of Anti-Christ, it galled him to think that Popish Spain was allowed to watch the two guardians of free thought and Protestantism wasting each other's power and resources.

A war against Spain was his passion by day, his dream by night:

The fleet had now been put into excellent order and had been divided into two grand divisions, one of 25 sail with 4,100 men and 874 guns under Blake, the other of 38 sail, 4,410 seamen, 3,000 soldiers, and 1,114 guns under Penn, the soldiers under the command of General Venables. The gallant captain Robert Blake went out with his uncle Benjamin Blake, now reinstated in the Penn division. These divisions sailed with sealed orders, which were to strike a blow at the pride and power of Spain. But Blake had also other orders which were to punish the privateers of Brest and Toulon, to prevent the invasion of Naples by the Duke of Guise, to crush the pirates of Salee, Tunis, and Algiers, the pests of our commerce, to punish the State of Tuscany for supporting Rupert and his fleet, and to enquire into the

illegal action of the Knights of Malta in forcibly seizing some English ships.

Early in December he anchored in Cadiz and was received by all with the greatest respect. The English residents crowded to the beach to see him. The Dutch admiral lowered his flag in honour of the red cross, and some Algerian cruisers brought a number of English captives on board to appease his wrath. All who had insulted the Commonwealth trembled at his approach, including the Grand Duke of Tuscany, whilst the terrified Pope gave orders for solemn processions and exposure of the Sacred Host to avert the threatening calamity from the dominions of the Church.

Blake now proceeded to Port Tunis to try and persuade the Dey of Algiers to give up his English captives without bloodshed which he not only refused in the most insolent terms, but even refused to allow the ships to take on fresh water. "Tell the Dey" said Blake "that God has given the benefit of water to all his creatures, and for men to deny it to each other is equally impious and wicked." The barbarian insolently replied that he had no fear of the British fleet.

Blake then to deceive the Dey stood out to sea and, when after 5 days nothing was seen of his fleet, to the spirit of defiance succeeded a spirit of content. The corsairs' watchfulness and ardour relaxed. They thought they had looked their last on the famous red cross.

But late one afternoon the whole British squadron once more rode into the harbour and anchored within half musket range of the great batteries. The English had prepared themselves for a terrible day, and at a signal from the flagship *St. George*, divine service was performed throughout the fleet in an extremely solemn and impressive manner. The attack then began. Nine men-of-war stationed themselves as near the batteries as they could float and the first broadsides from the English ships were answered by no less than a hundred and twenty shore guns of large calibre, for two hours the firing continued. But the gale blew volumes of the impenetrable smoke caused by the cannonade into the eyes of the corsairs and disturbed their aim, whilst almost every shot from

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Blake now exerted himself to the utmost. He captured the Dutch merchant-men at one swoop, and a convoy of twenty-six others, including three men-of-war. The Dutch were panic-stricken, and the Council, stirred by his success, added forty sail and six fire-ships to the fleet, strengthened Dover pier, raised the seamen's pay, and summoned all mariners between fifteen and twenty to the service of State. They further promised to raise the strength of the fleet to 250 sail and 14 fire-ships. But though these promises were not fulfilled yet Blake had under his command 105 vessels carrying 3961 guns. But his constant cry was Seamen, Soldiers! Finally two regiments of foot were taken on board bodily and originated the marines."

The Dutch preparations were also made on the grandest scale, and in a few weeks their renowned Admiral, ripe in age, honours, and experience, saw himself at the head of 120 sail, a force sufficient in the opinion of every patriotic Dutchman to sweep the English navy from the face of the earth. On the 21st day of June Blake fired his parting salute in the Dover roads. So awful a burst of cannon had not been heard by the inhabitants of Kent since the days of the Armada.

Two days later despatches left Westminster in hot haste to recall Blake, saying that the Dutch admiral with all his fleet was in the Downs. But he had meanwhile accomplished one of the three great objects of the expedition for, meeting the great Dutch herring-fleet off Brockness, convoyed by twelve men of war, he sank three, and captured the others and the six hundred herring-busses. But as the latter belonged to poor families, whose entire means of life they were, he merely took every tenth herring as a royalty and, warning the men not to fish again in British creeks and islands, let them go home.

This act of clemency was severely censured by many. The politicians said that if the fish were of no use to the fleet they should have been thrown into the sea. He answered "that they were human food and thousands would suffer and none gain by their destruction." Blake's was indeed a happy fate:- the only fault ever advanced by friend or foe against his public life was an excess of generosity towards his vanquished enemies.

Can one imagine the action of a Rupert or a Maurice in such a case!

Towards evening the two fleets sighted one another and Blake strove to engage. But the elements intervened and the fiercest of mortal passions were stilled in a moment before the awful demonstration of nature. "The fleet" says the Dutch writer Cornelius Tromp "was buried in the most terrible abysses, to be tossed up to the clouds, and on every side appeared all the dreadful forerunners of a dismal wreck. The darkness, danger, and distance from land filled the imagination of the sailors with horror. The storm raged through the night and the Dutch suffered terribly. More than one of the frigates and three of the fire-ships had been dashed on the rocks. The Dutch fleet was scattered beyond recall. But Blake running before the storm had been fortunate enough to keep his whole fleet intact and he pursued the miserable remnant, 42 sail, of Tromp's squadron, and when it sought refuge in Scheveling, he ravaged and insulted the Dutch coasts from Wadden to Zealand, and then ran across to Yarmouth with his prizes and nine hundred prisoners.

But the States-General undismayed prepared another large and gallant fleet and placed it under the renowned admiral De Witt, whilst the mob heaped insults on the veteran Tromp, who, in a fit of disgust, laid down his commission. De Reuter also endeavoured to do so but was over-persuaded and he joined De Witt who took the supreme command. The opposing fleets were now of about the same strength and on sighting the Dutch Blake signalled to attack. The Dutch fleet however was in no good order. Its leaders were disunited. Apathy, intrigue, and discontent were on every deck. The Brederode, Tromp's old flag-ship, would not even allow De Witt to board her, and several other ships refused to obey his orders. However De Witt refused to retreat before the presumptuous islanders, and the two fleets came into collision. For more than an hour the roar of artillery was incessant and eventually the Dutch fell back and continued the battle till night fall. They had suffered most severely in men, the English in masts and rigging. The most experienced admirals in both fleets were of opinion that De Witt could

not have held out an hour longer without being entirely broken and annihilated. Holland was in fact unmistakeably worsted. Two of his ships were sunk and two others had been taken, and to add to De Witt's troubles twenty of his captains fled by night and conveyed news of the disaster to Zealand. Meanwhile Blake had repaired his ships and the next morning he chased the remnants of the Dutch fleet into the shallows of the Goree.

Nothing could exceed the avidity with which the reports of the battle of the North Foreland were read in London. It was the first great naval action which the nation had fought since the reign of Elizabeth. Hitherto, Tromp, Evertz, and de Reuter had been regarded as invincible. Yet an English land-officer with but 3 years experience of the sea had defeated those who in their turn had swept the imperial navies of Spain from the face of the ocean. Blake's victory over de Reuter and De Witt had in fact raised him into the highest rank of living Admirals.

Blake now made the usual winter dispersal of his fleet, severe weather now having set in, whilst the Dutch took advantage of the same to commence the construction of another huge armament. Tromp's energy and influence had inspired an extraordinary degree of activity into all the marine departments of Holland, which, in an incredibly short space of time, had fitted out and manned a vast fleet. In fact Tromp took Blake by surprise, and quite unexpectedly appeared off the Goodwin Sands with more than a hundred sail of the line, frigates, and fire-ships. He intended to close up the Thames, cut off reinforcements from Chatham or the Lea, and to fall on Blake's own little squadron like an avalanche, and either crush it, or drive it down the Channel towards Land's End, and then, with the entire coast at his mercy, dictate peace to the Commonwealth on his own terms. Blake meanwhile had removed his pennant to the "*Triumph*". A council of war was called on board the *Triumph* and Blake in spite of the present superiority of the enemy declared his resolution to fight. The captains accepted the decision with alacrity and at 3 in the afternoon Tromp made a sudden effort to get alongside the British Admiral at a disadvantage but failed, and, instead

found himself engaged by the *Garland* and *Bonaventure*, two ships of sixty eight and thirty guns respectively.

The Dutch admiral was now in peril but Evertz came to his rescue and engaged the *Bonaventure*. The gallant little merchantman was thus between the fire of two powerful admirals. The English held out manfully but were outnumbered by men and weight of metal, and, of two hundred men on board the *Garland*, the Captain and sixty men were killed, and many more wounded, whilst the *Bonaventure* had suffered in an equal degree. The Dutchman then boarded and captured them. Meanwhile the *Triumph*, *Vanguard* and *Victory* were engaged with no less than twenty of the enemy, but just at dusk Blake shook them off and gave orders to Verrier to recover the captives. But he was intercepted, and his ship was surrounded. Three times it was boarded and the boarders driven back. But the flag-ship was reduced to a wreck. The top mast was shot away, the mainstay was gone, the sails and tackle were in ribbons. The hull was shattered and pierced. The wonder was how she could float, and, had it not been for the *Vanguard* and *Sapphire* which stood by her with unwavering steadiness and devotion, the English admiral must have fallen before such overwhelming numbers. Thick fog and December darkness put an end to the fight and Blake at once put into the Sea-road to repair his damages and to recall his dispersed squadrons. But the Dutch losses had been heavy. One of the vessels had been blown into the air, *Tromp's* and *De Reuter's* ships had been put out of action and many others had been seriously damaged. However for the moment they were masters of the Channel. There seem to have been two principal causes of the disaster, the first and last that England experienced under Blake's command. First of course the overwhelming superiority of force of *Tromp*; secondly the cowardice manifested at a critical time by several Captains of Blake's fleet. Had all the ships behaved like the *Garland* and *Bonaventure* the result would probably have been other than it was. Blake in fact determined to put an end to such a state of

things and demanded an enquiry, at the same time tendering his resignation. But he found that misfortunes which might have ruined another had given him strength and influence in the country. The Council wrote by return of courier, thanking him for his gallant conduct in the late action, and immediately sent to enquire into the misconduct of certain officers, and into the general state of the fleet. As a result Deane and Monk were ordered to hold themselves in readiness to go on board. All cruisers were ordered to join the rendezvous. It was resolved to raise the marine forces to 30, 000 men, and Blake was given a free hand to act as he pleased.

Curiously enough, Blake's defeat gave him power to effect many of the desired reforms, the most important of which was that all captains and other superior officers were in future to receive their appointments from the state. Under the old system there is little doubt that many of the captains were not only useless but that many of them were nominees of the Stuarts and traitors to the Parliamentary cause.

As a result of the Parliamentary enquiry Blake's own secretary was cashiered. Several captains were put under arrest, and he even broke his own brother Benjamin, and sent him ashore, thus silencing every malicious tongue.

Tromp meanwhile rode up and down the Channel with a broom at his mast-head and the States General had the assurance to declare that the British Isles were in a state of blockade. Many were the jokes in Holland regarding the names of the "Garland" and "Bonaventure" the captured ships. They even contemplated a descent on Jersey and Guernsey. But on the 8th of February Blake sailed from Queensborough, the "Triumph" still being his flag-ship. His fleet numbered eighty men of war and frigates with twelve hundred soldiers on board. He had in fact stolen a march on Tromp, who had gone southwards to convoy out a large fleet of merchantmen, and he only turned Cape la Hogue to meet the English burning to avenge the insult of his broom. Confident however, he eagerly gave battle, and even sent the convoy out of range to witness his victory. It

was really the first time the two fleets had met on equal terms. Blake, Deane, Penn, Lawson were on the one side; Tromp, Evertz, De Reuter on the other. The battle speedily became general and on both sides the wreck was awful. One minute the English boarded a Dutch man-of-war, the next moment they were flung back. Many ships were on fire, others sank with all hands. The roar of the artillery could be heard along the shores of the Channel from Boulogne to Portland. De Reuter himself boarded the *Prosperous*, a merchantman of fifty guns commanded by Captain Barker and took him and his officers prisoners. But Blake came to their assistance. De Reuter himself was surrounded. Admiral Evertz hastened to his assistance and in the melee Penn's ship was put out of action, the gallant Dutchman Kruick's vessel was shot to pieces, and was found the next day floating but with not a living soul on board, and Swers was taken prisoner, whilst De Pert, though writhing on his back in agony from a splinter wound; continued to flourish his hangar till he and his crew went down. The Dutch cannonade was in fact no match for that of British, and Blake was able to detach some swift ships to try and capture the convoy. Tromp seeing this fell back, and many of his captains fled. Blake remained master of the situation, though too exhausted to pursue at night in mid-winter. Heroic valour had characterised the officers and men on both sides. The Dutch had eight men-of-war taken and destroyed. The English had had several ships captured but all were retaken. Our only loss was the *Sampson*, whose brave commander and nearly all her crew were slain, and the vessel being unseaworthy was abandoned.

No ship, besides she, had suffered so severely as the flag-ship. Her captain and new secretary and half the crew were killed. Blake himself was wounded in the thigh.

When night came on Blake sent his wounded on shore to the well-prepared hospitals, where all vied to promote their comfort and recovery. Blake himself refused to be treated on shore and made every effort to repair his ships. At dawn Tromp

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Now, under Cromwell's direct orders, he sailed towards Gibraltar, where an extremely characteristic incident occurred. Some sailors, whilst rambling about the town, suddenly came upon a procession of priests carrying a Host through the streets, and instead of falling on their knees before the sacred symbol, like the pious Spaniards, the Puritan seamen laughed at and derided those who did so, until their want of reverence provoked one of the clergy to call on the populace to avenge the insult aimed at their religion. A street fight ensued, and, with advantages of numbers and local knowledge on their side, the Malagayans beat the scoffers back to their ships, whither they carried an English version of the fray to their commander. Indignation and true policy concurred in inducing Blake to treat the affair gravely. In Lisbon, Venice, and other Catholic ports, mob-law had been applied to the sailors of English merchant-

vessels on the ground of alleged want of respect for the mummies of foreign worship, and, considering the new relations which the two countries were about to assume, he judged it due to the honour of his flag and necessary to the safety of his countrymen, to shew the Spaniards that he could and would redress such wrongs with promptitude and severity. Half measures, he felt, would be useless in such a case; so, sending a trumpeter into the town, he demanded, not retaliation on the offending mob, as was expected, but that the priest who had set them on should be given up to justice. The Spaniards were astounded. Give up a Catholic priest to the judgment of heretics! The Governor of Malaga replied that he had no power over the offender, as in Spain the servants of the Church were not responsible to the civil power. "I will not stay to inquire," said the stern Englishman, "who has the power to send the offender to me; but, if he be not on board the *St. George* within three hours, I will burn your city to the ground." And so he dismissed the messenger. No excuse, no protest, was admitted; and before the three hours had expired the priest made his appearance in the fleet. Blake now called accusers and accused together; heard the story on both sides; and decided that the seamen had behaved with rudeness and impropriety towards the natives, and therefore provoked the attack of which they complained. He told the priest that if he had sent an account of what had occurred to him, the men should have been severely punished, as he would not suffer them to affront the religion of any people at whose ports they touched; but he expressed his extreme displeasure at their having taken the law into their own hands, as he would have them and all the world know that an Englishman was not to be judged and punished except by Englishmen. With this warning for the future, Blake, satisfied that the man had been given up and was then completely at his mercy, treated him with civility and sent him back unharmed to his friends, who, on hearing an account of the affair, were delighted and astonished at the magnanimity displayed by the terrible commander. Cromwell was mightily pleased with this little incident. He took the

letters referring to it in his own hand to the Council, read them out with a smiling face, and, when he had finished reading, declared that by such means they would make the name of an Englishman as great as that of a Roman was in Rome's most palmy days.

Early in June the fleet passed the Straits and anchored once more in the Bay of Cadiz, where they received a more than usually hospitable reception. By the treaties then existing between the two states, not more than ten English ships-of-war could claim to enter any Spanish port at one time, yet, as a mark of extraordinary confidence and respect, when the Governor of Cadiz sent down a present of bread, flesh and vegetables to the *St. George*, he desired it to be intimated to the Admiral, that although the capitulations declared that "there cannot come in hither above ten ships-of-war at once, nevertheless his lordship might come in with all his forces and welcome." But Blake suspected a snare, and also he daily expected war to be declared on Spain so he refused the specious invitation. He now heard of the conduct of Venables, because of whose treachery the English force under Penn had been disgraced and discomfited, who however then sailed for Jamaica and landing his troops added it to the permanent colonial empire of the country.

Thereupon Philip declared war, and seized the persons of all English residents and merchants and laid an embargo on all their property including that of Nicholas Blake the Admiral's brother. He was overjoyed by Venable's failure at the island of Hispaniola and in his delight made the Governor of the island a grandee, and pensioned him, and the messenger who brought the news of the defeat was presented with 1500 ducats a year for life.

The invincible prowess and fortunes of the young Commonwealth had in fact created much alarm in Spain particularly, and, in the delight of the safety of Hispaniola, Philip forgot the loss of Jamaica.

Blake shortly after met the great Spanish fleet, but, as he explained in a letter to the Protector, forbore to attack, partly

because he was not sure of the political status quo, and partly because the fleet had only water for four days, especially as the Spaniards made no attempt to attack on their part. He explained in his letter that he was not sure what reception his letter would get and added that his ships were in a miserable state of foulness, that he had but little stores remaining and that fresh supplies were uncertain, as he had heard not a word about them from the Commissioners of the Admiralty (who were responsible for sending the victualling ships). He pointed out that his men were likely to become discontented under these circumstances and that he would proceed home as soon as he could get a sufficient supply. He merely alluded to his own state of health, though he had left a sick room to go on board, and though he had developed scurvy and dropsy from the lack of exercise, liquor, water, bread and vegetables. His constitution was in fact undermined. He eventually sailed for home but reaching there found no rest. He was in fact indispensable. Ascue and Penn were suspected of treachery. Deane was dead. Monk had neither the genius nor desire for a naval command, and now the nation was committed to a war with Spain and in fact the Pope was endeavouring to band all Catholics against the formidable heretics. Even Holland was wavering in her friendship and the king of Portugal had deliberately delayed the execution of the treaties entered into with him.

Blake, ill then as he was, strained every nerve to repair and replenish the fleet and only asked that in his failing health a Sea-General should be nominated as his successor, and Mackenzie was nominated to the post. But the difficulty of getting in the necessary provisions was incredible and, Blake's patience at length tired out, he determined to sail without them, taking only what were essentially requisite.

He sailed from St. Helens on March the 15th 1656 and at Torbay saw his last of England. But he met severe weather, and his flagship the "Naseby" was almost wrecked by the Taunton which became unmanageable and both ships almost collided. Nearly all the vessels lost their longboats and many

their cables and anchors. The stores were now again running short after a 2 months' cruise and Blake detached Captain Stayner with 7 ships to watch in Aviero Bay for the Spanish silver-fleet whilst he raided to replenish.

Scarcely had he anchored when four magnificent Spanish galleons deluded by false reports as to the whereabouts of the English fleet and loaded with gold, silver, pearls, precious stones, and other most valuable cargo, and having the Viceroy of Lima and his family, a General, and Admiral, and Vice-Admiral and 2000 inferior persons on board hove in sight. The Spaniards took the English for their own fleet and discovering their mistake too late, some ran ashore, whilst the others gallantly engaged the British. But two galleons simultaneously caught fire and the Vice-admiral's vessel though defended with heroic valour sank and with it the unfortunate Viceroy of Lima with his wife and daughter. The galleon of the Rear Admiral was also taken, a prize of inestimable value as Stayner wrote to Blake, "worth all the rest of the fleet." It alone contained two million pieces of eight. Of the 8 vessels only two escaped but the money lost amounted to nine million of eight. The young Marquis de Badajoz, the son of the Viceroy of Lima, was saved, and he told the sad story of his father who, after fourteen years as Viceroy of Lima, had left to end his days in Spain with his wife, three daughters, and his four sons, and of how, to share the fate of his wife, a daughter, and a son, he rushed into the flames. The young Marquis and his other brothers and sisters were saved by the boarders and taken to the "Speaker", where they were received with great courtesy by the rude sailors, and he soon became a great favourite of the two commanders.

A General had now been ordered home by Cromwell to consult with him regarding the general conduct of the war and Blake nominated Mackenzie, and, collecting all Stayner's prizes he took farewell and committed them to his charge.

England soon rang with the new glories of its great seaman. Rewards without end met the victorious Mackenzie. A knighthood was reserved for Stayner, and the bullion captured

by him was landed at Portsmouth, carried in some eight and thirty wagons, and, attended by chosen picquets of soldiers, was paraded through the City of London, and immediately coined into money at the Tower.

Blake now had to face another winter at sea, and such a sea, with his fleet in worst condition and in his state of increasing bodily infirmity. The Spaniards too laughed at him for a mad-man, but Blake nevertheless held on and was rewarded after November by the receipt of news that the second silver fleet of six royal galleons and sixteen other great ships was on its way to Europe and had taken refuge at Santa Cruz. He then sailed with his whole force of twenty-five ships and frigates for Santa Cruz, which was reputed one of the strongest naval positions in the world. The castle at its entrance was mounted with the heaviest ordnance and well garrisoned: seven powerful forts commanded it, connected with earthworks, and these works were now strengthened by the whole force of the Silver Fleet. The precious metal, pearls, and jewels, were carried on shore into the town, whilst the usual freightage such as hides etc. remained on board, Don Diego having no fears for their safety. The royal galleons were stationed with their broadsides facing the sea, each side of the narrow entrance of the bay, and others moored in a semicircle so as to allow their batteries full play. Large bodies of musketeers lined the earthworks.

Don Diego in fact felt so secure that, when a Dutch captain whose vessel happened to be in the roadstead on seeing the advancing English fleet in full sail asked leave to retire, Don Diego said not unreasonably, that his position was impregnable. But the Dutchman who had been in the late wars shook his head and said "For all that, I am very sure that Blake will soon be among you." "Well," said the haughty Spaniard "Go if you will, and let Blake come if he dare", whereupon the applicant hoisted sail and withdrew.

When Blake received news on his sick-bed that all the silver fleet was in the harbour, he immediately arose and called a council of war and stated his proposal to ride into port and attack

the enemy in his formidable position. The only way of approaching the royal galleons was to destroy them where they stood, and the views as to this possibility were conflicting. But it was resolved at least to make the attempt, and once again a solemn prayer was offered to the Disposer of events. Stayner now vice-admiral, on his old frigate the "Speaker", led the van, and, unchecked by the tremendous broadsides of the galleons and the terrible flanking fire from the castle and batteries, passed the outer defences and established himself near the royal galleons, whilst Blake covered his left flank and commenced a furious cannonade against the defences, especially the castle. The Spaniards fought with desperate bravery yet the cannonade along the earthworks gradually slackened, as one by one the batteries ceased to answer, and Blake was able to go to Stayner's assistance, who had for four hours been combatting far superior forces, with all but a small containing force. Though the battle had but commenced at 7, at 2 it was clearly won. Every enemy's ship in the harbour was in flames and the light could be seen miles from the scene of action. Not a single ship or cargo escaped. It was now Blake's care to retire with his fleet which he did with ease, for providentially a south-west wind sprang up and the whole squadron retired complete, though not unscathed. Several frigates, particularly the "Speaker" were rendered unfit for further service. The loss of the Spaniards however was immense. The Silver Fleet was gone with its ships, guns, equipments, and cargoes.

Perhaps no naval action was so warmly admired or so curiously criticized as the attack on Santa Cruz. Heath called it the most desperate attempt ever made by sea, Clarendon called it a miraculous action, whilst the Spaniards said that the attackers were not men but devils. When the news of the great exploit reached London the excitement was extreme. The Lord Protector sent his secretary down to the House with Blake's letter, and the House at once tendered him the thanks of the country and voted him five hundred pounds for the purchase of a jewel to be given to him as a mark of its honour and respect. The messenger Captain Hay was granted a hundred pounds, and a



letter of thanks was written to the officers of the Fleet. A day was also set apart for a solemn national thanksgiving.

Cromwell himself wrote Blake a personal letter of congratulation.

But the great Admiral's cup of triumph was embittered by the failure in the action of his favourite brother Humphrey, who was Captain of a frigate. He was accused of cowardice and, though the captains in a body went to Blake to intercede for him, and to save him the disgrace of a courtmartial, Blake insisted, and it was held, but, though the Officers could give but one sentence on the evidence laid before them, the entire Court sent a petition asking him to remit the sentence and allow the culprit to return to England on his own ship. The prayer was granted, but the Admiral wrote on the painful document "He shall never be employed more."

But the incident but added to Blake's bodily troubles for who, like his brother, could supply a stranger's place by the sick bed. Anxious now as he was to return to England, he paid a second visit to Salee and compelled the Moorish corsairs to restore the Christian captives to their freedom and to enter into a peace with England. He had in fact conquered the Moorish Prince at Santa Cruz, for his terms were at once accepted, and in less than a week he departed for the North. He now left a portion of his squadron under the gallant Captain Stoakes with the title of Vice Admiral in the Spanish seas, and sailed for home.

Hoisting his pennon on his old flag-ship the *St. George*, Blake saw for the last time the spires and cupolas, the masts and towers, before which he had kept his long and victorious vigils. When he put in for fresh water at Cascaes road he was very weak. "I beseech God to strengthen him," was the fervent prayer of the English Resident at Lisbon, as he departed on the homeward voyage. While the ships rolled through the tempestuous waters of the Bay of Biscay, he grew every day worse and worse. Some gleams of the old spirit broke forth as they approached the latitude of England. He inquired often and anxiously if the

white cliffs were yet in sight. He longed to behold once more the swelling downs, the free cities, the goodly churches of his native land. But he was now dying beyond all doubt. Many of his favourite officers silently and mournfully crowded round his bed, anxious to catch the last tones of a voice which had so often called them to glory and victory. Others stood at the poop and forecastle, eagerly examining every speck and line on the horizon, in hopes of being first to catch the welcome glimpse of land. Though they were coming home crowned with laurels, gloom and pain were in every face. At last the Lizard was announced. Shortly afterwards the bold cliffs and bare hills of Cornwall loomed out grandly in the distance. But it was now too late for the dying hero. He had sent for the captains and other officers of his fleet to bid them farewell; and while they were yet in his cabin, the undulating hills of Devonshire, glowing with the tints of early autumn, came full in view. As the ships rounded Rame Head, the spires and masts of Plymouth, the wooded heights of Mount Edgecombe, the low Island of St. Nicholas, the rocky steeps at the Hoe, Mount Batten, the citadel, the many picturesque and familiar features of that magnificent harbour rose one by one to sight. But the eyes which had so yearned to behold this scene once more were at that very instant closing in death. Foremost of the victorious squadron, the *St. George* rode with its precious burden into the Sound; and just as it came into full view of the eager thousands crowding the beach, the pier-heads, the walls of the citadel, or darting in countless boats over the smooth waters between St. Nicholas and the docks, ready to catch the first glimpse of the hero of Santa Cruz, and salute him with a true English welcome, he, in his silent cabin, in the midst of his lion-hearted comrades, now sobbing like little children, yielded up his soul to God.

The mournful news soon spread through the fleet and in the town. The melancholy enthusiasm of the people knew no bounds, and the national love and admiration expressed itself in the solemn splendour of his funeral rites. The day of his death, the corpse was left untouched in its cabin, as something sacred; but next morning skilful embalmers were employed to open it;

and, in presence of all the great officers of the fleet and port, the bowels were taken out and placed in an urn, to be buried in the great church in Plymouth. The body, embalmed and wrapt in lead, was then put on board again and carried round by sea to Greenwich, where it lay in state several days, on the spot since consecrated to the noblest hospital for seamen in the world. On the 4th of September a solemn procession was formed on the river. The corpse was placed on a state barge, covered with a velvet pall, adorned with pencils and escutcheons. Trumpeters in state barges, bearing his pennons as General-at-Sea, surmounted by the great banner of the Commonwealth preceded the body. Humphrey and all his other brothers, all the nephews and other members of his family, together with the secretaries and servants attached to his immediate household, dressed in the deepest mourning, followed. After them came the Protector's Privy Council in their state barge, the Lords of the Admiralty and Navy, the Lord Mayor and Aldermen of the City of London, the Admirals, Vice-admirals and Captains of his fleet, the Field Officers of the army, and a vast procession of civil notables.

In this order they moved slowly up the river from Greenwich to Westminster, where they were received by a military guard and greeted with salvos of artillery. At the stairs, the heralds reformed the procession, which then marched slowly through Palace-yard to the venerable Abbey. A new vault had been made for his remains in Henry the Seventh's chapel, and close to that of the great Tudor monarch, and they were lowered into it amidst the tears and prayers of a grateful and admiring nation. Other heroes of the Commonwealth had been already buried within those regal precincts; and on every such occasion loyal tongues had not feared to accuse the new rulers with upstart and indecent pride. But no voice was raised against the interment there of the conqueror of Tromp, the hero of Tunis and Santa Cruz, the liberator of Christian slaves. In some unaccountable manner, this illustrious man escaped the common lot of greatness; perhaps no one ever played so conspicuous a part in the drama of history who was followed by less envy,

hatred, and other uncharitableness. Personal foes he seems not to have known; and even the bitter enemies of his political creed spoke of what they deemed his errors more in sorrow than in anger. All parties owned, as they stood by that silent grave, that its occupant was one who had merited, by brilliant public services and the rarest disinterestedness, the highest rewards a grateful country could bestow. When the imposing ceremonial was closed, a stone slab was laid on the vault, and they left him there in the old Abbey, with no other monument than that of his imperishable renown.

To their eternal infamy, the Stuarts afterwards disturbed the hero's grave. It was a mean revenge in them to touch the bones of *Cromwell*, but in *his* case they could urge the plea of moral and political retribution. The great usurper had been the chief cause of their father's tragic death; he had hunted them for years from land to land; he had shot their most faithful followers and confiscated their richest estates. But Blake had ever been for mild and moderate councils. He had opposed the late King's trial. He had disapproved the usurpation. When he found the sword prevail against law and right, he abandoned politics, like Sidney Vane, and other of his illustrious compeers, giving up his genius to the service of his country against its foreign enemies. Surely after a life of the most eminent services, the ashes of such a man might have been allowed to rest in peace! The House of Lords, in their ardent zeal for the restored family, gave orders that the bodies of Cromwell, Ireton, and Bradshawe should be dug out of their graves and treated with gross indignity; but even these zealots did not deem it decent to include the remains of Blake in their order. That infamy was reserved for Charles himself. In cold blood, nearly seventeen months after his landing at Dover from the deck of the *Naseby*, a royal command was issued by this prince to tear open the unobtrusive vault, drag out the embalmed body, and cast it into a pit in the Abbey yard. Good men looked aghast at such an atrocity. But what could the paramour of Lucy Walters, Barbara Palmer, Kate Peg, and Moll Davies, know of the stern

virtues of the illustrious sailor! What sympathy could a royal spendthrift have with the man who, after a life of great employments and the capture of uncounted millions, died no richer than he was born! How could the prince, who sold Dunkirk and begged a pension from Versailles, feel any regard for a man who had humbled the pride of Holland, Portugal, and Spain, who had laid the foundations of our lasting influence in the Mediterranean, and in eight years of success had made England the first maritime power in Europe!

A hole was dug for the reception of these hallowed bones near the back door of one of the prebendaries of Westminster and the remains of Cromwell's mother, of the gentle Lady Claypole, and of sturdy John Pym, were all cast into the same pit. How lightly Englishmen should tread that ground!

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## **THE INDIAN ARMY IN EAST AFRICA-1914-1917.**

BY

BREVET COLONEL G. M. ORR., D. S. O., 11TH LANCERS.

Any brief story of the war in East Africa as a whole is as yet unwritten. It is probable that few people in England know much about it, beyond the fact that General J. Smuts commanded the forces. Subsequent despatches, even in précis form, have not received any prominence in the public press, and it is unlikely that they have been read in the original. It will probably come as a surprise to the army of India itself, just as it is unknown to the public at large, to find the extent to which the Indian army has shared in the hardships of the campaign in that sodden and malarial stricken country.

To construct a picture of the war on one canvas from reading the various despatches or stories such as have appeared in magazines like the Times History of the War is difficult enough, even to a reader interested in the subject. The purpose of this article is to try and show in one account the co-relation of the movements of the various forces throughout the years 1914 to 1917, which brought about the expulsion of the Germans from their colony and the defeat of their forces, and at the same time touch on the part played by the Indian army. It is hoped the writer will be forgiven any inaccuracies but he has had to rely a great deal on memory as regards the actual operations in which particular Indian units were concerned. Space forbids the mention of the services of the splendid East African and West African troops and the large contingents of South Africans and Boers, and the fine Rhodesian and British units.

To arrive at a correct sense of geographical proportion with other theatres of war, the reader must remember when studying the map that he is looking at a country which was about twice the size of Germany itself.

At the outset of the war the land frontiers of the German colony marched on the north with British East Africa and Uganda, each under its own governor; on the west with the Belgian Congo; on the south west with Northern Rhodesia and Nyassaland, each again under their own

administrations; on the south with Portuguese East Africa:— thus four-fifths of the 2200 odd miles of land frontier ran with frontiers of the Allies, while the remaining one-fifth, along the Rovuma river, formed a gateway which was taken ample advantage of by the Germans until Portugal ranged herself with the Allies. To the east was a seaboard of some 450 miles with several excellent harbours, the two northern of which, Tanga and Dar-es-salam, were the termini respectively of the two existing German railways. Some 50 miles off the coast and roughly midway between these two harbours lay the British island of Zanzibar with its open roadstead at its southern end facing German East Africa. Off the mouths of the Rufiji river lay the German island of Mafia.

The German colony appears to have been no more prepared for war than the Allies, but the advantages of unity of command and the right sort of organization lay with the Germans. Their Commander, Von Lettow, at once took action to expand his two or three dozen active and reserve companies of native troops and to increase their number by recruitment from the ample supply of warlike personnel to his hand; nor did he delay to organize the country in every way for war. It was otherwise with the Allies. During the first year the different colonies were called upon to devise each their own defence with such means as were at their disposal. The magnitude of the effort required was little enough seen at the heart of the Empire, so that small blame can be meted out to those in far off colonies if they failed to see the proportionate effort required of them to organize not only the manhood but the material things within their borders: thus no attempt was made until the autumn of 1916, after two years of war, to raise and train additional battalions from the splendid and ample material of which the King's African Rifles are composed. It is true that a small expedition was sent from India in October 1914 to make a descent on the German coast. The adventure met with a distinct rebuff at Tanga and the little force retired to British East Africa where for a year it was doomed to comparative inaction in defence of the long land frontier of British East

Africa and Uganda. Not that the year was not full of incident on all the frontiers, both land and sea, but it was every man fighting for himself rather than being directed to fight for a definite and common object.

The first Indian troops to reach East Africa were General Stewart's brigade, consisting of the 29th Punjabis, two composite battalions of the Jhind and Kapurthala, Rampur and Bharatpur infantry, the 27th Mountain Battery, the N. W. Railway maxim detachment, and the Calcutta 12-pounder battery. Several actions on the frontier stood to their account before General Aitken's force appeared off Tanga on the 1st November. In that force were General Tighe's brigade formed of the 13th Rajputs, 2nd Kashmirs, and a composite battalion of Gwalior and 3rd Kashmir infantry, and General Wapshare's brigade consisting of the Loyal North Lancashires, 63rd Light Infantry 98th Infantry and the 101st Grenadiers; while as divisional troops there were the 61st Pioneers. Neither the Faridkot Sappers nor the 28th Mounted Battery were landed at Tanga, but the latter had the unusual experience of serving their guns from the deck of a ship.

No reference to Tanga is complete without a mention of the story of the bees, which the enemy were credited with unchaining as a prelude to a counterstroke. Truth must out; the bees were there right enough, but the enemy suffered equally with us! The writer was told by a German officer that one of their companies abandoned their three machine guns for an appreciable time and fled back into Tanga! such experiences were frequent in that country in the succeeding years.

Christmas of 1914, and January of 1915 found the 101st, the 2nd Kashmirs, the Jhind infantry and the 28th Mountain Battery partaking in the operations in the notoriously unhealthy Umba Valley. The necessity of guarding the approach by the coast road to Mombasa compelled us to keep a small force in that evil district throughout 1915; not a unit went through its brief tour of duty there but came away impregnated with malaria. Early in 1915 the 130th Baluchis and a squadron 17th Cavalry were among the new additions to the force which throughout the year was taxed



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to its utmost to guard the long frontiers and frustrate the attempt to invade British East Africa, or damage the railway which ran temptingly parallel with the frontiers.

During 1915 the navy established a blockade of the coast, a blockade which was run with unfortunate results by two enemy ships filled with guns, arms, and ammunition. In the early summer we captured the island of Mafia, from which as a base the navy carried to a successful conclusion its operations for the destruction of the German cruiser *Konigsberg*, which lay hidden in one of the nothern arms of the Rufigi delta. Most of the *Konigs-berg's* armament was however landed and was employed with the field forces throughout the war.

In the autumn of 1915 the Imperial Government decided to move. Additional units of the Indian regular army (i. e., 17th Infantry, 40th Pathans, 129th Baluchis, 5th Light Infantry) and troops of the Union of South Africa, set free after the conquest of German South West Africa, were detailed to compose an army in British East Africa for the invasion of the German colony. Major General Tighe, commanding in British East Africa since the spring of the year, at once pushed forward preparations to receive and concentrate this force as far forward as possible, at Longido and Mbuyuni, on lines of advance which were dictated more or less by the nature of the country.

On the 19th February 1916 the Hon'ble J. C. Smuts, with the rank of Lieut-General, arrived in East Africa to take supreme command, and at once commenced operations with the object of occupying the the Kilimanjaro area before the rainy season as a preliminary to a sustained offensive later on.

In the advance that ensued the 29th Punjabis, 129th Baluchis, 3rd Kashmir [all in General Sheppard's brigade,] Faridkot Sappers 17th Cavalry Squadron, 27th Mountain Battery were in General Stewart's division on the Longido-Moshi road, while General Tighe had with him on the Mbuyuni-Taveta line the 130th Baluchis, 2nd Kashmir's [both in General Malleeson's brigade,] 61st Pioneers, N. W. Railway Maxims, the Calcutta Battery and 28th Mountain Battery.

It was during this period that the two fine Indian Railway Companies crowned their arduous labours by laying the line on from Mbuyuni to Taveta in record time and completing it on to Kahe through forest and swamp in April.

After several hard fought actions in the foot hills south of Kilimanjaro, particularly by General Malleson's brigade at Reata Nek, and by General Sheppard's brigade at Soko Nesai, the enemy withdrew on the 22nd March over the Ruwu river near Kahe, and Smuts stopped, as he says, "to dispose his force to the best advantage during the rainy season and to study the important question of the strategy to be followed in the future operations."

General Smuts tell us in his despatch of 27th October 1917 that in order "to occupy so huge a territory within reasonable time a simultaneous advance from different points along different routes was essential". The enemy was estimated to have a strength of about 16000 rifles, nearly half of which were now concentrated on the Tanga railway; the remainder was scattered round the colony's frontiers with its larger portion facing the Belgian and British troops in the north west. Von Lettow was at that time credited with the intention of resisting stubbornly in the Pare and Usambara hills alongside the Tanga railway and, if forced out of that region, of withdrawing to the Tabora area where he could form a junction with the force from the north west: fighting on interior lines he would have the advantage of the use of the Central railway. Besides the force under General Smuts' immediate command, which he now organized in three divisions, there was a large force of Belgians near Lake Kivu, and sufficient Indian and African units on Lake Victoria to form a brigade, while in the south west the troops under General Northey were sufficient to provide two or three small columns.

In the re-organized Imperial division, now under General Hoskins, with Generals Sheppard and Hannington as Brigadiers, in addition to the units already mentioned, the 40th Pathans now came up: the 28th Mountain Battery was transferred to one of the South African divisions. Beyond Lake Victoria the 98th formed part of the lake detachment. On the coast were the 5th

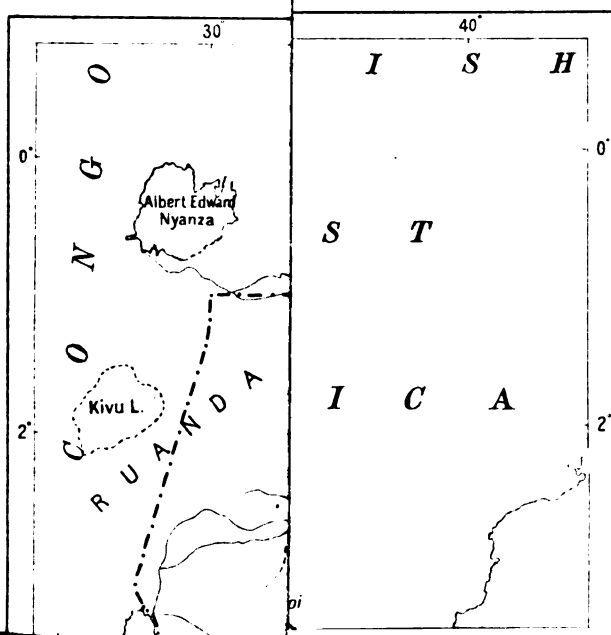
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Light Infantry and Jhind infantry, while on the ever extending lines of communications were the 17th, 63rd, 101st, Bharatpur, Gwalior, Kaparthala, and Rampur infantry. The Indian Medical Corps was represented by the 120th, 139th and 140th Field Ambulances and several Clearing and Stationary hospitals: nor can we forget the ubiquitous Indian A. T. cart and drabie.

With the deliberate intention of making Lettow detach from his main force on the Tanga railway before operations commenced after the rains, and thereby weaken his defence in the Pare and Usambara hills, General Smuts with characteristic daring pushed Vandeventer with his division of Union troops across the Masai steppe to Kondoa Irangi in April. The march was carried out under almost incredible difficulties and Kondoa was reached with slight opposition on the 19th April. Realizing the threat to his whole scheme of defence Lettow transferred a large part of his force from the Tanga to the Central railway, and, rightly judging to find Vandeventer isolated and cut off from supplies, took the offensive against him with about 4000 rifles. The attack failed but the enemy, faced with the threat of a further advance by Vandeventer, remained opposite Kondoa throughout May and the greater part of June.

By the third week of May everything was ready for the main advance. During the rest of May and June while Vandeventer contained Lettow at Kondoa, Smuts drove the German force out of the Pare and Usambara hills south through Handeni into the Nguru hills beyond the Lukigura: the Belgians cleared the Ruanda province to a line from the north end of Lake Tanganika to the south west corner of Lake Victoria: the British Lake column seized Ukerewe Island as a base for operations against Muanza: General Northey made good the country from Bismarckburg at the south east end of Lake Tanganika to Ubena which lies north of Lake Nyassa.

It was about this time that the 57th Rifles joined Hoskins' division. During July Smuts rested his main force, but Vandeventer pushing the enemy before him reached the Central railway at Kilimatinde and Dodoma: the British Lake Column





seized Muanza: the Belgians occupied Kigoma, the Lake terminus of the Central railway: Northey reached half way to Iringa: the navy occupied Tanga and Pangani.

August and September were strenuous months: by a double move of the Belgians from the eastern shore of Tanganyika and of the Belgians and British columns from the south end of Lake Victoria, the German north western forces were forced back south east of Tabora, which was occupied by the Belgians after three days fighting on 19th-September: on the 29th August Northey occupied Iringa but his communications to Lake Nyassa were very precarious: Smuts, moving his main force down both flanks of the Nguru hills, drove the enemy over the Wami river at Dakawa and then, calling Vandeventer in eastwards along the Central railway, himself encircled Morogoro from the north east, so that Lettow was forced to evacuate that place and move through the Uluguru hills towards Kissaki: the occupation of Morogoro on 26th August was immediately followed by a converging move on Kissaki through most difficult country: Lettow though abandoning much in the hills, evacuating Kissaki on 15th September and receiving a heavy blow from Hannington's brigade at Duthumi, managed to withdraw his troops across the Mgeta: in August the coast towns of Sadani and Bagamoya and in September Dar-es-salam Kilwa, Kiswere, Lindi, Sudi, and Mikindani were effectively occupied. In the coast operations the 129th Baluchis and, I think, the 5th Infantry were chiefly concerned. Lettow was not followed across the Mgeta: To quote General Smuts' despatch. "The enemy had now..... taken up a defensive line along the Mgeta river south of Duthumi, and further to the west astride the road from Kissiki to the Rufiji. The attack against him was not pressed as our men were exhausted and worn out with ceaseless fighting and marching for several weeks through most difficult country on half rations or less, and a thorough rest was imperatively necessary, not only on military but also on medical grounds". The troops will long remember those months of hardships.

An interesting side-show took place in July when the Railway companies and Jhind Infantry went out and severely defeated an enemy gathering near our line of communications at Korogwe. Thus by the third week in September, in addition to the coast towns, there remained in our hands the Central railway and the whole area north of it, together with the block of the Uluguru hills south of Morogoro. Wähle's detachment in the west retiring from Tabora was now rapidly evacuating a large tract of country and, by the direction of his march, showed his intention to be to make for Iringa or to break through Northey's line, with the object of joining the German force in the Mahenge area. In the hope of preventing this junction a small column from Vandeventer's division on the Central railway was pushed south in October, to act with a portion of Northey's force round Iringa, while Northey concentrated the greater portion of his force further south.

Up to the end of September the line of communications of Smuts' main force had run back nearly 200 miles to Korogwe on the Tanga railway. Although, after Dar-Es-Salam fell into our hands, the adaptation of the Central railway to a form of motor traffic had shortened our line during October, it was essential to restore it for proper railway traffic before it could be looked to as the line of supply for further operations southward. Meanwhile the possession of other harbours southward opened the opportunity of their use as bases in any campaign south of the Rufiji.

The delay caused by the combination of the necessity of restoring the railway, of the organization of new bases, and of the re-organization of his whole force, is best described in General Smuts' own words. "Throughout November and December no general offensive was possible.....disease had played havoc amongst the troops, of whom large numbers were totally unfit without medical attention, prolonged rest, change of climate and nourishment to make any sustained effort. The wastage due to the above causes was enormous, and the reduction in the number of effective rifles was alone enough to stop all

further movement until reinforcements were available. The mechanical transport was in a seriously damaged condition in consequence of the strain of continuous work over appalling roads, or trackless country, and extensive repairs, for which there had been no time, were essential. The personnel of the transport suffered, as did every other branch of the forces, from the same diseases as affected the fighting troops, and as men dropped out increasing strain was thrown on those able to keep going, until the loss of men threw scores of vehicles out of work. Animal diseases had wiped out horses, mules and oxen in thousands, and it was necessary to replace this transport, in some way or other before movement was possible. The strain upon all ranks of all units and services due to the steadily increasing effect of disease had reached the limit that was endurable. It is out of the question here to do more than thus barely to mention one or two of the more conspicuous of the numerous difficulties which hampered our activity during the time which elapsed between the arrival of our forces at Kissaki in the middle of September, and the resumption of our general advance on the 1st January 1917. While these difficulties were being overcome Kilwa port was being prepared as a base, and a division of troops was transferred to that theatre. "

The proved unsuitability of the climate was the factor which compelled General Smuts to re-organize his forces with the minimum of white troops. He tells us that over 12,000 white troops were evacuated between the middle of October and the end of December. The result of the re-organization was that a weak division consisting of an infantry and a mounted brigade of Union troops was concentrated at Iringa under Vandeventer for co-operation with Northey who lay further south: for operations on the Rufiji there remained on the Mgeta three brigades, one Union, one Nigerian and one Imperial, under the immediate command of General Smuts, while in the Kilwa area there was a division of two brigades of Indian and African troops under Hoskins.

In the Imperial brigade (General Sheppard) were 130th Baluchis, 2nd and 3rd Kashmirs and the 29th Punjabis (replaced



later by the 30th,) in Generals Hannington's and O'Grady's brigades of Hoskin's division were the 57th, 129th, 40th with 27th Mountain Battery and some of the 61st Pioneers.

Meanwhile operations during December in the Iringa area failed to prevent the German force from Tabora passing through to the south east and forming with the companies, already in the Mahenge district, a front along the Kilimbero river. As General Smuts aptly writes "the operations of Generals Vandeventer and Northey at this time are interesting as showing the practical impossibility of cornering an enemy in country of a nature such as that in which these operations were conducted". The 17th Infantry and 28th Mountain Battery (relieved in the spring by the 24th Mountain Battery) partook in the operations in the Iringa area up to the summer of 1917.

During November Hoskins had pushed troops up the Matandu to Chemera, and to Kibata in the Matumbi hills. Such a threat to his rear caused Lettow to make a determined effort to force us out of the Matumbi hills. He endeavoured to invest and take our position round Kibata by assault, and very severe fighting, in which outlying positions changed hands several times, took place between 6th and 15th December, by which time the arrival of reinforcements forced Lettow to withdraw north west to the Rufiji. In the fighting at Kibata the Mahsuds of the 129th particularly distinguished themselves in a night bombing attack.

When the main operations commenced on the 1st January with the advance from the Mgeta front, it was General Smuts' hope that, after dealing a heavy blow at the enemy facing him, he would be able to cross the Rufiji and, combining movements with Hoskins' division, be able 'to cut all connection between the two enemy forces on the Rufiji and at Mahenge respectively, and either to envelope the enemy on the Rufiji or deal him a heavy blow as he escaped south. In spite of the success with which General Beves' Union brigade, by splendid marching, seized a crossing over the Rufiji at Mkalinso, without the enemy becoming aware of the fact, and in spite of the rapid advance of General

Sheppard's Indian brigade against stiff resistance in the course of which a crossing was forced just east of Kibambawe, General Smuts' hope was frustrated. General Beves' troops were so exhausted that his further advance was suspended and General Sheppard, though able to maintain his position, was not able to undertake further offensive action. South of the river General Hoskins' most westerly troops could only reach Ngarambi, and that only by giving the transport at its disposal an elasticity which reached breaking point. Although an attempt was made to contract the space between Mkalinso and Ngarambi by pushing the Nigerian brigade to the south east through Beves, the enemy still had space to withdraw his companies leisurely.

This was the situation when, on the 20th January, General Smuts handed over the command to General Hoskins and left East Africa.

General Hoskins had a most difficult problem to solve. Although a few more weeks of comparatively fine weather could be expected, General Hoskins tells us in his despatch of 30th May 1917 that "the supply and transport situation was not at all satisfactory. There was no reserve in the advanced depots: the numbers of porters was insufficient; the animals in transport units were dying and the drivers of the mechanical transport were falling sick so rapidly that the number of troops in the front line could not be maintained there". The state both of the transport and of the troops combined with an early commencement of heavy rain, which ushered in the wettest season known in East Africa for many years, forced General Hoskins to review the situation anew, and re-organize the forces for the renewal of the offensive after the rains. The approximate total strength of the enemy's efficient troops still in the field was computed at between 8000 and 9000 with 4 heavy and 16 field guns and 73 machine guns.

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On the 11th January General Smuts at Duthuml wired for General Hoskins to come and see him as soon as possible. General Hoskins left his headquarters near Kibata at 10.30 a. m., rode some 20 miles through the hills and then motored via Chemera to Kilwa which he reached at night fall and next day left in an aeroplane for his 150 mile flight across enemy country to the vicinity of Duthuml.

***Indian Army in East Africa.***

Heavy rain continued in the Rufiji basin and Coastal area till mid May. This fact combined with the necessity for a complete and far reaching re organization precluded any but minor operations being carried on with the purpose of harassing the enemy. During February, March and April the enemy gradually evacuated the area between the Rufiji and Matandu rivers, but pushed a strong force up to the Ngaura river 20 miles south of Kilwa. In the south west, where the rains had not been so heavy, there was a considerable activity, which had the effect of driving a portion of the German force across the Portuguese border in February. This force recrossed the Rovuma in March, only to make in April a more extended raid into Portuguese East Africa, whence it was not driven out until August by a British column sent from the south end of Lake Nyassa. At the end of February, too, an enemy column of some 600 rifles broke north west past the north end of Lake Nyassa, and carried out a remarkable raid right across German East Africa. Not only did it reach the northern frontier, but turned south as far as the vicinity of Handeni, doubled back up to Kahe, then south again until, it was finally brought to bay on Luita hill south east of Kondua Irangi and surrendered on 1st October. Of this raid General Vandeventer says in his despatch of 21st January 1918, "such a raid could perhaps only have been carried out in a country like German East Africa, where the bush is often so thick that two considerable forces may pass within a mile, unaware of each other's presence, and where a ruthless leader of a small force can nearly always live on the country."

General Hoskins had hoped that during May the general offensive might be resumed with concerted forward movements from Lindi, Kilwa, central Rufiji, Iringa, Songea and possibly from further south. To this end the Belgians had promised their assistance where ever needed, and he had discussed with the Portuguese Commander-in-Chief the lines of co-operation feasible when his forces should be organized. At the end of May, however, General Hoskins was called away to a command

elsewhere, and General Vandeventer returned from South Africa to take over the chief command.

The enemy forces were now in two main bodies; a western force under Tafel based on Mahenge, with a strong detachment to the south at Likuju facing one of Northey's columns; an eastern (and main) force, under the direct command of Lettow, facing our troops both at Kilwa and Lindi and with a reserve in the Liwale district. The enemy detachment raiding in Portuguese territory had not yet been driven back, and Naumann was still being pursued across German East Africa.

The measures necessary for General Hoskins re-organization had not yet taken full effect and much preparation was still in progress. General Vandeventer decided to make his main advance from Kilwa and Lindi; to operate against the enemy in the Mahenge area from the north with Belgians, and to use General Northey's forces to assist in the Mahenge operations, to clear Portuguese East Africa, and finally to advance from Songea.

In the beginning of July the offensive began with the advance of the Kilwa force, which drove the enemy over the Mavudje river after several sharp fights culminating in a severe action on the 19th July at Narungombe where the enemy was driven off the waterholes and given a heavy blow, a fight in which the 33rd Punjabis and 40th Pathans, 22nd and 27th Mountain Batteries had a full share. While the Kilwa force now marked time during August, the Lindi force which included 30th Punjabis and was, at that time, under General O'Grady, moved, and after severe opposition pushed the enemy half way to Mahiwa, which caused Lettow to reinforce his right wing, so that on 19th August further offensive action in that quarter was withheld. Meanwhile Hawthorn's column of Northey's force had pushed the Lukoja detachment back to Mpondas, and the Belgians were closing in on

Mahenge from Iringa and Kidatu. In the south Shortose, driving the German back out of Portuguese territory, reached Tunduru on 23rd August.

By the middle of September the situation was ripe for sustained movement; both the Kilwa and Lindi forces, under Generals Hannington and Beves respectively, had been reinforced and General Vandeventer planned to engage the enemy where met with by a combined movement southwards with the Kilwa force and southwestward with the Lindi force; meanwhile the western forces were to press on vigorously and contain Tafel in the Mahenge area.

The Kilwa force, had been organized in two "columns"; number "One" under Colonel Orr and number "Two" Colonel Ridgway. At this time the only Indian units in the Kilwa force were the 127th and 129th Baluchis and the 22nd and 27th Mountain Batteries but it was joined later by the 17th Infantry, 55th Rifles and 25th Cavalry; the 40th Pathans and 33rd Punjabis, (the latter having arrived from Aden in May and having become decimated with malaria) had been left on the lines of communications. In the Lindi Force area were the 5th Infantry and the 30th Punjabis, the Kashmirs and 24th Mountain Battery and the Jhind and Bharatpur Infantry.

Moving on the 19th September, the Kilwa force drove the enemy, fighting all the way across the waterless bush, through Bweho, where his retreat was nearly cut off and he was badly mauled by Cunliffe's Nigerians, back on to Nahungu, the scene of another severe action, and so across and up the Mbemkuru until, after more sharp fighting from 1st to 4th October, he was forced off the river to the south east: simultaneously with this advance the 25th Cavalry, just arrived from India, successfully raided some enemy food depots on the upper Mbemkuru. While Ridgway's column now contained Lettow towards Ruangwa, Hannington sent No: "One" column, with the 25th Cavalry attached, by forced marches to Ruponda, an important enemy grain depot, which it reached on the 10th October, thus completely severing the

main enemy communication from Mahenge to Massassi via Liwale. Meanwhile the Lindi force made steady progress through difficult dense country, driving the enemy back on Mahiwa, where, in combination with the Nigerian brigade which had been sent across country from Nahungo, an attempt was made to envelope him. Lettow, well aware of the danger of the continued advance of the Lindi force, moved with a large portion of his reserve direct from Ruangwa to Mahiwa, and from the 14th to the 19th October there ensued some of the severest fighting in East Africa.

The transport and supply situation did not admit of the Kilwa force continuing its move at once but, starting on the 17th October, a raid by No: "One" column on Lukuledi mission had the effect of not only forcing a detachment of three companies out of that place and of obtaining valuable information of the district, but of inducing Lettow to reinforce his detachment by another three companies from the Mahiwa front and attack Lukuledi,—an attack which met with a severe repulse, after which No: "One" column was withdrawn to Ruponda. During October Tafel had evacuated Mahenge, which was occupied on the 9th by the Belgians, and, evading Hawthorn, who had moved east from Mpundas to cut him off, was north west of Liwale by the end of the month out of reach of Hawthorn or the Belgians.

On 6th November the Kilwa and Lindi forces moved simultaneously, and on the 10th joined hands to the north of Chiwata, where Lettow under cover of his rear-guards had concentrated. On the same date a small mounted column had occupied Massassi and moved east. From the 15th to the 18th Lettow fought strong rear-guard actions to prevent himself being surrounded in the Luts'hem valley and eventually succeeded in escaping east along the edge of the inhospitable Mkonde plateau, but not without leaving about a thousand men in our hands.

Meanwhile early in November Tafel, avoiding Liwale which had been occupied since 2nd November by a small Belgian

column sent from Kilwa, broke through Shorthose who had moved north from Tunduru to intercept him. By the 18th November he was approaching the upper Bangala west of Massassi. Lettow, who for a long time had had no communication with Tafel and had no knowledge of his movements, now by very rapid marching swept southward through Newala to the Rovuma, leaving hundreds of sick and wounded in his trail: keeping along the north bank he crossed the Bangala on the 24th going west. Attempts to catch him with No. "One" column and Breitenbach's mounted troops first at Newala and then on the Bangala failed by a few hours at both places in spite of hard marching.

Tafel quite unaware of Lettow's situation had meanwhile struck east hoping to find him at Newala, and on the 25th November appeared on No. "One" column's communication. Awakening to the reality of his situation he endeavoured to break south from No. "One" column, which had turned back on him, but cut off from Lettow and now foodless in an unknown country he surrendered unconditionally on the 28th November. Lettow by then had escaped up the Lujende valley, having crossed the Rovuma at Ngomaui from which place he had driven the Portuguese garrison on the 25th November before Ridgway's column and the Nigerian brigade from Massassi could reach it. It fell to the 55th and 129th with the 27th Mountain Battery to march back Tafel's surrendered force of 3500 troops and transport.

To quote General Vandeventer in his despatch of 21st January 1918—"With the surrender of Tafel and the retreat into Portuguese East Africa of Von Lettow Vorbeck with the remnant of his forces (approximately 50 officers, 250 other Europeans and 1500 to 1800 Askaris), the campaign in German East Africa came to an end,..... An equally arduous campaign though on a very much smaller scale, will however probably still be necessary before the German force in Portuguese East Africa is finally brought to book, for the country is vast and communications are difficult".

With the passing of Von Lettow into Portuguese East Africa came the end of the campaign as far as Indian units were concerned and they were sent back to India in the opening months of 1918 with the exception of the 22nd Mountain Battery and a company of Sappers and Miners which had recently arrived. No reference to the work of Indian troops in East Africa is complete without a tribute to "Z" Signal Company and the Indian telegraph personnel, who laid and maintained hundreds of miles of cable and airline in the face of extra-ordinary difficulties and dangers from both man and beast.

Under the terms of the armistice Von Lettow, with a remnant of nearly 200 whites and 500 Askaris, surrendered on the 14th November 1918. After eluding our columns throughout nearly the whole length of the Portuguese colony, he had turned back and apparently worked round the northern end of Lake Nyassa, for he surrendered on the Chambesi river in Northern Rhodesia. Von Lettow deserves well of his country and earned the ungrudging admiration of all those who had fought against him.

It is not the intention here to comment on the conduct of the war. In the realm of strategy the military student will find the problem at the outset of 1916 one worthy of attention. General Smuts' overland advance with the avowed intention of occupying as much territory as possible within a reasonable time, the successful accomplishment of which owed much to his daring move on Kondoia, may have critics. The alternative of an earlier capture of Dar-Es-Salam and an advance along the Central railway will have its adherents. Although General Smuts' name will be the more generally associated in the public mind with the war in East Africa, very real praise is due to General Hoskins for the sound principles of his re-organization which allowed General Vandeventer to carry the campaign of 1917 through with the energy he did. The natural difficulties of country and of climate were, if anything, worse than in 1916. The enemy fought more and in greater strength on the battlefield and with the determination of a desperation that was lack-



ing in the previous year. Though the length of communications was as great as any north of the R. R. and the feats of marching were second to none in previous campaigns the troops fared better than before.

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## **THE FORMATION AND ORGANISATION OF THE MACHINE GUN CORPS.**

BY

LT. COL. G. HOWSON, M. C., COMMANDANT, MACHINE GUN  
CENTRE.

Royal Warrant dated 2<sup>nd</sup>. October 1915.

GEORGE R. I.

Whereas we have approved of the formation of a Machine Gun Corps.

Our Will and Pleasure is that the Machine Gun Corps shall be deemed to be a Corps for the purpose of the Army Act.

Given at Our Court at St. James's, this 14th. day of October 1915, in the 6th year of Our Reign.

By His Majesty's Command.

KITCHENER.

Before August 1914, exceedingly little attention was paid by the British Army as a whole to Machine guns or to the importance of other types of mechanically operated fire-arms.

There were paragraphs and chapters on the tactics of the Machine Gun in the various manuals and textbooks, but it was not treated as a weapon of vital importance. The amount of ammunition allowed for training purposes was so low that it was difficult to bring these principles into practice. Its value was realised by a few enthusiasts but their enthusiasm was not of sufficient weight to produce the necessary impetus.

There were many reasons for this apparent lack of interest in a weapon that has proved of such vital importance.

As with many other questions, Finance was one of the main obstacles.

The initial cost of a Machine gun is high in comparison with its appearance. There is nothing very spectacular about a Machine gun.

It is an expensive weapon to maintain in an efficient state, as it lives on ammunition. The cost of upkeep is high as there is very considerable wear and tear.

## ***Machine Gun Corps.***

The provision of trained Machine gunners meant that the number of infantry as infantry was reduced. It was not realised that highly trained Machine gunners were able to replace, to a very large extent, far more than their own numbers of infantry and any suggestion of adding an increase to the Army before the war was by no means popular.

The cost of introducing any later pattern and more efficient type of weapon was almost prohibitive in the days of low Army estimates.

Added to the financial side of the question, there was a certain amount of opposition to new ideas on the part of those in authority, this opposition being based on the Conservatism inherent in the British character, more especially among the higher ranks of the Army.

The estimated value of the weapon was based on the old statistics, such as its failure on many occasions to do the work expected of it.

For example the comparative failure of the Mitrailleuse in 1870. The failure of a Gardner gun at Abuklea causing the loss of nearly half the naval brigade. Two Gardner guns at Tamm were too late coming into action and the Arabs' charge got home.

The machine gun was treated as a form of rifle and was usually handed over to the tender mercies of a junior officer, who probably had few ideas of his own on the subject of tactics and, even if he had any ideas, was diffident about putting them forward.

Machine gun instruction was given at Schools of musketry. The erroneous but at the same time almost universal idea held good among regimental officers that Schools of musketry were hot-beds of theory and breeding grounds of faddists. This fact counted very largely against any attempts at enthusiasm on the part of Machine gun officers, as they were promptly hailed as cranks on showing any signs of unusual interest in their weapon.

In many cases the title was thoroughly deserved as the balance that should come with age or experience was lacking.

Little attention was drawn to the important results that were obtained from Machine gun fire in the Russo-Japanese war—the first war in which Machine guns were used in comparatively large numbers.

The Germans on the other hand saw the possibilities of Machine guns. Having studied their tactics very carefully in the South Africa War of 1899-1901 and in the Russo-Japanese War, they then proceeded to specialise on the gun by forming a Machine Gun Corps.

The organisation of this Corps was very carefully thought out, special match meetings were held for Machine gunners and every effort was made to raise the Corps to a very high standard of efficiency. The results of this training was very apparent directly the war started. The work done by German Machine gunners came as a revelation to many and caused some considerable surprise. There was a feeling that the Germans were not being quite fair in having so many Machine guns.

By degrees the value of the Machine gun was realised; the first result of this was that regiments were given four Machine guns in place of two. The process of learning this lesson was very slow; the full value of a Machine gun can only be realised from personal experience and it was unfortunately impossible to give a personal demonstration to all those who were ultimately responsible for the provision of the weapon.

At this time, Machine guns were organised as regimental sections with a brigade Machine gun officer, who was nominally a sort of staff officer to the Brigadier. The idea of treating Machine guns as a weapon to be used away from their own units existed, but only as a temporary measure. Field Service Regulations Part I, para 7.

At the beginning of 1915, many difficulties were being experienced by all ranks in maintaining a supply of efficiently trained Machine gunners. Machine gun officers either became casualties or were required to replace Company Commanders in their own units.

The introduction of the Lewis gun as part of the armament of a regiment brought in a new element.

### ***Machine Gun Corps.***

The Germans had formed a Corps of Machine gunners in 1904.

The French brought in a similar organisation in February 1915.

On several occasions before the war the idea of forming a separate Machine Gun Corps for the British Army had been suggested, but for many reasons, among them those given in the earlier portion of this article, the suggestion had not found favour.

The formation of a special School of Machine Gunnery close to General Headquarters in France early in 1915 was a step towards making Machine guns a separate arm. From this time on many attempts were made to push forward the formation of the Machine Gun Corps, and finally in October 1915, the Corps came into existence.

In addition to the difficulties of replacing casualties in officers and men of regimental Machine gun Sections, the vital importance of the correct siting of Machine guns as the backbone of any defensive scheme began to be realised. It was obvious that, with divided control with Machine guns under regimental commanders, there must be many difficulties in the way of real co-operation in the defence. One result of this being that cohesion all along the line was lacking.

It was felt that something had to be done to link up schemes of defence and base them on Machine guns, properly arranged to develop co-operation to the full extent.

It may be of interest to note that among the first, if not actually the first independent Machine gun units raised in France, were the Machine gun companies of the Indian corps. In March 1915 all the regimental Machine guns of the Garhwal Brigade of the 7th Meerut Division were formed into a Machine gun Company. This Company was formed as an independent unit commanded by the Brigade Machine Gun Officer. The formation was not officially recognised but it was actually a separate formation drawing its own rations.

Shortly afterwards all Brigades in the Indian Corps followed suit, and in May 1915 a Divisional Machine Gun Officer was appointed.

Before going into the details of the actual organisation, it may be of interest to describe very briefly some of the various types of Machine guns and other weapons of a somewhat similar nature.

The generic term "Machine Guns" has generally been used in the past to describe all types of such weapons.

This has led to much confusion and on many occasions to weapons being used for purposes for which they were never designed.

Before the War lighter types of automatic or mechanical weapons had only just got beyond the experimental stage. Directly the war started the need for these additional weapons was evident and they were introduced in large numbers. The need then arose for definite titles for these various types, as the work required of each type was of a different nature.

At the present time there are three main types or classes in existence.

Machine Guns

Machine Rifles.

Automatic Rifles.

*The Machine Gun.* Must be capable of prolonged firing at a high rate of fire and have a fixed mounting. It therefore requires strong working parts.

The chief patterns of Machine Guns in use are.

*Vickers.* Light gun.....weight 28lbs, used by Machine Gun Corps of the British Empire, Italy, France, Belgium the United States and Russia.

*Maxim.* Heavy pattern, obsolescent but still in use in India weight 58 lbs.

*Maxim.* Lighter pattern, Germany, Turkey and Bulgaria, weight 40 lbs.

*Schwarzlose.* Austria and Turkey, weight 38 lbs.

*Puteaux,* France.

*Heavy Hotchkiss,* France and Belgium, weight 52 lbs.

*Colt.* Canada, but discarded in favour of the Vickers.  
weight 35 lbs.

**Machine Gun Corps.**

Weight of different patterns of the same gun vary to some extent.

The Vickers, Maxim and Schwarzlose are water cooled, the water jacket holding from 7 to 9 lbs of water. The weights given do not include water.

*The Machine Rifle.* Fired from a support, weight usually between 15 and 30 lbs. Capable of firing bursts of fire at a very rapid rate but not capable of prolonged firing.

## Types.

Lewis. British Infantry. weight 28 lbs.

Hotchkiss, British Cavalry. weight 28 lbs.

France.

Madsen. Germany and now being introduced into Eng'and.

weight 18 lbs.

Browning. United States.

Parabellum. Germany,

*The Automatic Rifle.* Weight may run up to 15 lbs.

Various types in use but most of them still in the experimental stage. The ideal being a weapon of the same weight as a rifle.

## Types.

Farquhar Hill

Winchester.

As an example of the mis-use of the weapon owing to a wrong description, the issue of Lewis guns to the Second hundred thousand, may be of some interest. The public discussion on the shortage of Machine guns in the first half of 1915 may still be remembered. At the time a statement was made by some public official that all battalions of new infantry formations were being sent to France equipped with either four or six Machine guns each. The additional information was not given that these Machine guns were Lewis guns. Actually the majority of these "Machine guns" were Lewis guns mounted on Maxim gun tripods. The sections were formed as Machine Gun sections and the Officers in charge were actually trained in the usual details of Machine gun tactics. One example of the result of this training will illustrate a common mistake.

On a sideshow in connection with the battle of Loos the Lewis guns of one Brigade of a K. ii Division were formed as a Reserve, to carry out long range searching fire as part of the preliminary bombardment. These guns, 24 in number, were utilised for this purpose for four days. At the end although it had not been found possible to average an expenditure of more than three thousand rounds per gun per day, 18 guns required very extensive repair and overhaul.

Owing in a large measure to the vibration caused by firing the gun from a fixed platform, some of the guns had literally rattled themselves to bits. Since then various of the working parts of the Lewis have been improved but the gun is still not a suitable weapon for use as a Machine gun. It has its own role for which it is specially adapted.

Question of tactics are not being discussed in this article. This illustration is only brought in to illustrate the necessity for different titles for the various types of weapons.

*The Organization of the Machine gun corps.*

As has already been stated the Machine Gun Corps came into existence in October 1915.

It is now divided into three portions.

**Cavalry.**

**Infantry.**

**Motors.**

When Tanks first came into existence a Motor, Heavy Section, was formed but this later became the Tank Corps.

The actual sub-division of Machine Gun Corps Units is the following:—

Sections	equals	4 guns.
Sub-Section	„	2 guns.
Detachment	„	1 gun.

The organisation of the Machine Gun Cavalry is in Squadrons. A Squadron consists of Headquarters and 3 Sections.

Each Squadron is commanded by a Major with a Captain as Second in Command.



## **Machine Gun Corps.**

The actual numbers vary on different fronts, some squadrons being provided with pack transport, others with limber and pack combined.

There is one Squadron to each Cavalry Brigade.

The Infantry organisation at home and in Palestine is in Battalions.

When the Corps was first formed in 1915, there was one Company consisting of Headquarters and 4 Sections, to each Brigade.

The appointment of a Corps M. G. officer was then sanctioned with the rank of Lt. Col.—This appointment was not wholly satisfactory. The appointment of a Divisional M. G. officer was then introduced and later a Divisional Company was added.

The Machine Gun Corps organisation in France was roughly as follows:—

- With General Headquarters ... Brigadier-General and two Staff Officers.
- With Army Headquarters ... Army Machine Gun Officer with the rank of Colonel.
- With Divisions ... One Machine Gun Battalion, consisting of Headquarters and four Companies under command of a Lt.-Colonel.

In India the intention is eventually to have one Machine Gun Company with each Brigade of the Field Army.

Each Company is commanded by a Major or Captain with a Captain or Lieutenant as Second in Command.

Strengths vary to some extent as certain companies have pack, others have limbers.

The organisation of the Motor Branch is in two proportions:—

Armoured Car Units.

Motor Machine Gun Batteries.

An armoured Car Unit in the Field is commanded by a Major and consists of 21 Cars with 6 Machine Guns.

In India it has only 3 Cars with 3 Machine Guns.

A motor machine gun battery consists of 28 motor bicycles with 6 Machine Guns.

There is no special scale for either of these units as part of the complement of higher formations.

The German organisation is as follows:—

9 Machine Gun Companies of 6 guns divided into three platoons to a Division.

A Divisional Unit called a Machine Gun Marksman Detachment of 18 guns.

Total number of guns to a Division ... 72.

Each Company of 6 guns has a personnel of 89—all ranks.

The Americans have:—

One Machine Gun Battalion of 4 Companies to each Division.

In addition there is one Machine Gun Battalion of four Companies with each of the 2 Brigades.

That is to say a total of 12 Companies to a Division.

In writing this article an endeavour has been made to keep the following objects in view:—

1. To explain some of the causes that led up to the formation of the Machine Gun Corps.
2. To give some rough details of the present organisation.
3. To try to dispel some of the prejudices to the new formation that still exist.

The majority of Officers who were serving before the War usually had had something to do with Machine Guns either on Musketry Courses or in their own Units.

Familiarity breeds contempt. Machine Guns on Regimental Charges were frequently no-body's child. The Machine Gun Section was a nuisance to all sub-unit commanders as it was another of the many groups of Regimentally Employed Specialists, who were hardly ever available for Squadron or Company training. As a result of this pre-war existence, it is difficult for many to realise that the Machine Gun has now to be treated as a separate arm.

## **Machine Gun Corps.**

It is for this reason, that some of the causes that led up to the formation of the Corps have been discussed in so much detail at the risk of boring most readers.

The following are some of the benefits that should arise from the formation of the Machine Gun Corps:—

1. More highly trained Machine Gunners, and therefore efficient fire.
2. Easy control of a very powerful fire unit both offensive and defensive.
3. An organised system of defence without weak junctions.
4. Easy replacement of casualties by trained officers and men.
5. Infinitely better co-operation between Artillery and Machine Guns.
6. Far more efficient Machine Gun fire support to Infantry.

Several difficulties have naturally been experienced in the formation of the Corps. The following being the more important.

(i) Failure on the part of higher authorities to realise that for a Machine Gun unit to be thoroughly efficient and capable of exerting its full strength, it must be very mobile and absolutely self-contained.

For example Gunners cannot be expected to do the work of Drivers in addition to their own work.

With an insufficient number of drivers, mobility must be seriously impaired directly a unit comes into action. One mule one driver is the standard to be aimed at for pack work, most especially in the hills.

A Machine Gun unit requires a high proportion of signallers. Without them rapid communication is impossible and the full effect of available fire power cannot be brought into play.

(ii) Friction consequent on the introduction of an old weapon in a new guise. The number of Officers in the Machine Gun Corps of any length of service or of much experience was

small. A considerable amount of tact was required and this was absent at times. A proportion of Machine Gun Corps Officers developed swollen head, chiefly owing to their belief in the great importance of their new command. At the same time there was the natural feeling on the part of officers outside the Machine Gun Corps that the newcomer must be kept in his proper place from the beginning.

This friction has now died down, but was a question requiring the exercise of considerable tact at the beginning.

(iii) Rivalry between Lewis Guns or Machine Rifle enthusiasts and Machine Gunners.

The correct sphere of operations for either type of weapon was not defined. The Machine Rifle had taken the place held by the Machine Gun at the beginning of the war, and the real position of the Machine Gun in offensive and defensive war was only found by trial and experiment.

(iv) In India there was some doubt with regard to the possibilities of the weapon for Mountain Warfare.

There was a tendency on the part of Mountain Gunners to treat it as an intruder in the sphere that up to then had been occupied by Mountain guns alone. Demonstrations of the actual effect of Machine Gun Fire in the Hills have shown that there is a distance gap between the fire effect of Mountain Guns and Lewis Guns which can be effectively filled by Machine Guns.

In conclusion an extract from a circular letter sent out very recently from the Headquarters of an army in France with reference to the Machine Gun Corps, Infantry, may be of interest:—

"The organisation is still young and requires every help from Commanders of all arms to enable it to develop its full efficiency in the shortest possible time. It is certain that assistance given will be amply repaid in future operations, and the Army Commander feels certain that Corps Commanders will give their personal attention to the system of training, etc., so as to get full value from a fighting organisation which has already proved its worth.

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## **ARMoured CARS IN MODERN WARFARE.**

BY LIEUT-COLONEL W. D. SMILES, D. S. O.

The sphere of usefulness of Armoured Cars is more dependent upon the weather and the topography of the theatre of War than any other arm of the Army. Wet weather in a country with no metalled roads brings operations to a standstill immediately.

The necessity of Armoured Cars has been proved continually in Mesopotamia and Egypt; on the Fronts their opportunities, like those of the Cavalry, have been few except in retreats. On several occasions in retreat Armoured Cars have held up the advance of an Army until artillery has been brought up in strength against them.

The article has been divided into sub-headings—Characteristics, Organisation & Equipment, Attack, Retreat, Reconnaissance and Night Operations.

### *Characteristics.*

Where roads are good and numerous, Armoured Cars are able to travel longer distances in a shorter time than either Cavalry or Cyclists, and often obtain information which even aeroplanes are unable to secure. Their mobility too enables a commander to transfer them rapidly from one flank to another, and thus to turn to account opportunities which otherwise he would be unable to seize.

Armoured Cars act by fire, and can develop more in proportion to the number of men employed than any other troops. Their normal duties are similar to those of the cavalry, with whom they should usually work in close co-operation.

Assistance of other arms, or more Armoured Cars, are required to protect bridges, defiles etc. as Armoured Cars are extremely vulnerable in enclosed country. They, if handled with skill and kept in motion, have little to fear from artillery fire, and it should always be remembered that the nearer they approach the enemy, the safer they will be from shells. Surprise is an important factor in their employment, and, as they have a speed up to 40 miles an hour, concealment until their opportunity arrives is not a difficult matter. The moral effect of

Armoured Cars against troops, especially uncivilized troops, is very high.

*Organization and Equipment.*

The most efficient unit is a Squadron consisting of:—

4 Heavy	} Armoured Cars.
8 Medium	
4 Light	

With a first line transport of:—

- 1 Petrol Tank lorry.
- 1 Water Do.
- 4 3 ton lorries.
- 6 1 ton lorry.
- 3 Touring cars.
- 6 Motor-cycles.

Second line transport to be allotted according to the distance a Squadron is operating from its base.

One mobile workshop and one stores lorry should always be attached to each Squadron.

1. *Heavy Armoured Cars* should be either Peerless or Pierce Arrow 3 ton lorries, with the chassis strengthened to take a 3 pounder or similar gun. The armour plating for the Heavy Cars need not be thick, as under normal conditions there is no necessity to come closer than 1,200 yards to the enemy. The driver and engine must be efficiently protected, but beyond this a shield behind which the gun's crew can operate, and sides high enough to cover a box of ammunition, (about 20"), are all that is required.

The crew of a Heavy Armoured Car consist of one Officer or N. C. O. and four B. O. Rs. and their principle role is the protection of the medium and light cars against hostile Armoured Cars, and in destroying machine gun emplacements.

2. *Medium Armoured Cars* should be Rolls Royce, a make whose superiority is unquestioned. During the present War, while other makes required tons of spare parts, the Rolls required practically none. The Rolls Royce cars did the work required under all sorts of conditions, and only failed on one occasion

when, after being several hours in action, a bearing on the reverse seized. As all Armoured Cars when in action have to use the reverse continually, it is a point that future designers of armoured cars should pay particular attention to. An efficient body design for a medium powered car has not yet been produced. The present Rolls design has only one machine gun, and no proper arrangement has been made for giving an all round observation. The double turrets and reverse steering with which the Austin Armoured Cars are built have come to stay, but an observation turret must be arranged from which the Officer commanding the car will be able to control the fire of his two gunners, the driver of the car, and also to signal to, or read the signals of other cars or troops to whom he may be attached. Rubberine tyres should only be fitted when concentrated artillery or machine gun fire is expected; pneumatics should be used on all other occasions. Rubberines are not satisfactory in tropical countries, or for continuous work on badly metalled roads. Twin tyres on the back wheels are a necessity. Two armoured cars fitted with single wheels were lost in soft ground by the enemy trenches, during November 1916, whilst cars fitted with twin tyres operating over the same ground got away. This incident took place in Roumania.

3. *For Light Armoured Cars* the Ford is probably the best design. These carry only a driver & gunner, and can be pushed, pulled or carried over bad places on a road. They are especially useful in operations over rough or soft ground, where the presence of an armoured car is required, and it is not considered desirable to risk one of the heavier and more expensive cars.

In conclusion lightness, high clearance, twin tyres on rear wheels, and a thoroughly efficient reverse are the qualities most necessary in an Armoured Car. It is the exception nowadays to get an unreliable petrol engine, but the chassis, springs, axles etc. of an Armoured Car should be especially strong to stand the rough ground over which they will invariably have to travel to reach their objective.

### ***Attack***

Armoured Cars are an exception to the rule that once Battle is joined the liberty of manoeuvre, which the initiative has conferred on the assailant, is limited to what he can do with his general reserve. [F. S. R. part 1 para 100 (2)] If the ground is suitable a feint attack can be made on one of the enemy's flanks, and half an hour later the same Armoured Cars can assist in the real attack ten miles away. When the ground in no man's land is passable, Armoured Cars can render invaluable assistance to the infantry by pushing forward close to the enemy trenches, where they should be able to develop a superiority of fire, while the infantry advance to the decisive attack. F. S. R. part 1, para 105 (4). Except against exceptionally well trained troops the appearance of Armoured Cars close to the enemy front line has always had the effect of drawing a very heavy rifle and machine gun fire upon the cars, affording material assistance to their own attacking infantry.

Russian commanders had always this idea in view when employing Armoured Cars in an attack, but I only know of the cars being successful on two occasions. The failures always occurred because attacks intended to be simultaneous were not so in reality. (F. S. R. Part I para 104, 2 III.) The mobility of armoured cars makes them specially suitable for pursuit, or where ground permits of wide enveloping movement. In places where the ground is suitable Armoured Cars are best employed on the flank or flanks to pin the enemy to his ground, to complete the enveloping movement, or take up the pursuit should the enemy withdraw previously. Barbed wire, trenches and shell holes generally make it impossible for Armoured Cars to keep up with an advance, and the roads on these occasions are usually required for the transport of other arms and material more urgently needed. I know of one exception only, which happened during General Korniloff's last advance in Galicia in July 1917. Two of the Russian armoured cars pushed right through with a Cossack Division, repairing bridges, and filling up trenches on their way. For six days these cars were continually in the front line, and advanced nearly 40 miles into enemy territory. This was the Russian Army's last fight however, the whole Army collapsing five days later.



***Retreat.***

It is in rear-guard actions that Armoured Cars are superior to any other arm. Operating on roads which should be well known to them, the cars compel the enemy continually to deploy and give their own tired infantry the necessary time to take up fresh positions. Steps must be taken however, to secure vital points such as bridges and defiles, (F. S. R. Part 1. para 113 2).

Armoured Cars, if handled with skill and kept continually in motion, have practically nothing to fear from Artillery fire. During the retreat in Roumania one armoured car remained on about 300 yards of road from daylight to dark. Over 500 shells were fired at the car without a hit, and only a few splinters hit the car, doing no material damage. The element of luck enters largely into armoured car fighting. One day during July 1917 two medium armoured cars were knocked out by direct hits. These cars were travelling about 20 to 30 miles an hour when they were hit. A heavy car on the same road was in action for about six hours and got through untouched.

***Reconnaissance.***

Used on this work Armoured Cars can render much valuable assistance. When the opposing forces have reached striking distance their invulnerability to rifle fire will often enable them to locate the enemy's position with greater accuracy than Cavalry or Infantry scouts. In the long distance reconnaissance, armoured cars can of course cover far longer distances than cavalry, and the latter can be saved for work which the cars are unable to perform.

***Night Operations.***

In this connection one feels inclined to quote Mr. Punch's advice to those about to get married. In the early days of the War it was usual for an armoured car to crawl along a road into No Man's land at night, the Officer commanding the car walking ahead with an electric torch. The car would shell the enemy for a quarter of an hour at dawn, and clear off when the enemy in reply began to drop shells close. Apart from the value of these enterprises (F. S. R. Part 1, para 75(15), where it is necessary

for armoured cars to approach an enemy under cover of darkness with a view to attack at dawn, it will generally be found that owing to their mobility armoured cars can safely be allowed to leave their base at daylight, and will reach the field of battle in ample time for effective co-operation.

With the aid of the powerful searchlights which are fitted to the modern armoured cars, they have been found useful at times for out-post duties. When using armoured cars at night it should always be remembered that no spare numbers over and above those essential, are included in the crew of an armoured car, hence, if the crew are to get adequate rest they should not be called upon to do duty at night.

It is certain that the Armies of the future will all retain Armoured Cars as a part of their fighting troops. Even in peace time they will always be useful for protection of the Frontiers, and in assisting the Civil powers in dispersing riots and maintaining order in towns. The Bolsheviks used them continuously in all their street campaigns.

Their failures in the present war have usually occurred when they have been ordered to cover ground suitable only for a tank, a chamois or an aeroplane.

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# **AERIAL PHOTOGRAPHY AND ITS APPLICATION FOR MILITARY MAP-MAKING.**

BY

CAPTAIN H. HAMSHAW THOMAS, M. A., F. G. S., ROYAL AIR  
FORCE.

## **Introduction.**

The development of military aeronautics has been one of the most remarkable features of the war. The aeroplane has undergone a course of evolution in which it has become not only a potent weapon, but also an important factor in the development of the many methods of precision which have arisen during the conflict. These methods, which depend very largely on the existence of detailed large scale maps on which the exact positions of trenches, guns, and points of tactical importance can be indicated, will probably have a permanent influence on the military operations of the future. There is therefore some interest in recording some aspects of aerial work which bear on this question and in noting what may be done by units of the Royal Air Force in co-operation with surveyors during times of peace, to prepare for possible campaigns in the future.

The work of aeroplane photography is less well-known than the more spectacular sides of aerial activity, while the methods employed on different fronts showed considerable divergence. The present article is concerned chiefly with the use of photography for the construction of detailed maps on the Palestine Front. The conditions of warfare in Palestine and Syria were more analogous to those which might obtain in India, than were those of the western front and consequently the methods employed in Palestine should be worthy of careful consideration.

## **Scope and utility of aeroplane photography.**

The photographs taken from aeroplanes may be divided into two classes (*a*) vertical and (*b*) oblique.

Vertical photographs depict the ground immediately below the aeroplane and form the most usual type of picture taken. The early adoption of this method of taking photographs, and the developments which followed from its use, gave us at first a

distinct advantage over the Germans, though they were then provided with better cameras and apparatus. Ultimately it became the chief method employed by all air Forces. The vertical photograph is more difficult for an untrained user to understand and interpret, but gives much more information to the trained observer and is at the same time an approximation to a Large Scale map of the ground. The full interpretation of views of this class depends on the appreciation of the shadows cast by various classes of objects and on their appearance when seen from above. The use of the stereoscope with pairs of adjacent prints is of immense assistance.

Oblique photographs show the ground to one side of the aeroplane and give a panorama of a large area. They approximate more to the view of the country as seen from a high hill on the ground, and are useful for giving a general idea of the country, for showing the presence of hills and for assisting in the identification of features shown in vertical photographs, with the ground as seen from observation posts. Owing to the perspective effect it is very difficult to estimate the relative distances of objects shown in these views, and even to identify them, unless vertical photographs or very detailed maps exist.

Aeroplane photographs constitute a graphical form of intelligence which has great advantages over many other sources of information as to the enemy's forces, works and dispositions, because of its reliability. By its aid we may ascertain not only the positions and extent of earthworks, camps, gun emplacements, roads and railways, but also such features as telephone connections, and the routes taken by ration parties and reliefs, while, from comparative study of frequently photographed areas, it is possible to form an estimate of the intentions of the enemy.

In the location of hostile batteries, it is difficult to overestimate the value of this work, more especially when combined with the results of sound-ranging and observation sections.

In addition to the provision of intelligence for operations, photography is very valuable for recording the exact nature and amount of damage caused by special operations.

## ***Aerial Photography,***

This is particularly the case when the results of trench bombardment by artillery, or the damage caused by aerial bombing have to be estimated, and a very valuable check on the reports of observers is afforded.

### **Photography for Map-making.**

The conduct of operations on modern lines becomes very difficult in the absence of detailed maps, and involves the possibility of heavy casualties, besides the curtailing of schemes and operation orders, when the exact nature of the obstacles to be met and the country to be crossed are unknown.

Experience has shown that cooperation of air-craft with other arms on the ground is rendered of far less value when proper methods cannot be employed in reconnaissance, or contact patrol work on account of the absence of maps. In the same way individual aerial photographs of enemy guns or works lose much of their value, when it is impossible to identify their exact position by means of a good map of the ground.

This was especially illustrated by the course of the operations in Sinai and Palestine, where the pre-war maps were not sufficiently detailed or accurate for modern requirements. While, on the western Front, the pre-war maps were good and only required amplification and correction, it was found necessary to build up a new series of maps for the use of the Egyptian Expeditionary Force. This involved the elaboration of new methods and close study of the question of constructing military maps from aeroplane photographs.

In the earlier stages of the work, when there was a considerable shortage of machines, cameras and personnel, the work was chiefly restricted to limited areas containing trench systems and other noticable features, but photography was also undertaken over long stretches of country for the purpose of determining the true course of main roads and railways and for correcting the small scale maps in these respects. Later it was found possible to deal with large areas of country and to extend the series of trench maps so that the ground over which our advance would take place was also depicted. By the time when the final attack

commenced, over 2,000 square miles of country had been completely photographed and the results embodied in map form.

**Methods employed.**

The aeroplanes employed were of a type capable of reaching a considerable height and of carrying out a fairly long flight. When available, Bristol Fighters were used in which the camera was fixed internally in a special fitting designed for vertical mapping photography. For ordinary purposes exposures were made from about 12,000 to 14,000 feet with a short focus lens, so that a considerable area (e.g. 3 square miles) was shown on each photograph. Photographs were taken in long overlapping series by means of which a continuous strip of ground, about  $1\frac{1}{2}$  miles broad and perhaps twenty miles long, was depicted. Each pilot made on an average 72 exposures during a flight, so that a very large area of country could be photographed in a day. In the case of areas containing trenches or other works, many additional exposures were made from a lower altitude, showing all the enemy organisations on a much larger scale. By obtaining series of photographs overlapping each other both longitudinally and transversely, the whole of the area was eventually covered.

The resulting photographic prints were passed to the Field Survey Company for map compilation. Providing that the aeroplane had been flying correctly and that the axis of the camera had been maintained in a vertical position, each strip was taken as a unit by the compilation officer.

By various means the scale of the prints was calculated and a reduced tracing made to the map scale by means of a pantograph or Idograph. Starting with the pre-war map as a basis, and with the addition of all other points which could be fixed by triangulation or by intersection from the country within our lines, the map position of a large number of points shown on the photographs were determined. The objects chosen for treatment in this way were things which appeared in several separate groups of photographs such as tombs, houses, wadi-junctions, etc., and when different values for their positions resulted from

## **Aerial Photography,**

the study of different groups of photographs a mean position was taken. Any single set of prints may contain errors of scale and azimuth, owing to the ground not being flat or the axis of the camera not being vertical, but by the use of several sets of photographs it is possible to correct or spread out these errors and obtain a very good result in the end. After a number of points have been laid down on the compilation sheet of the map, the detail is drawn in and a very accurate presentation of the topographical features is possible. Woods and orchards can be shown in their correct shapes, all the minor bends and windings of rivers or nullahs can be shown exactly and many of those minor features put in, which might be passed over or generalised by the topographical surveyor working on the ground.

It has not yet proved possible to contour maps made from photographs, but in all the later maps form lines were inserted, which gave a good representation of the shape of the ground. These were chiefly determined by the use of the stereoscope. A single vertical photograph gives no idea of relief, except when the sun is low in the sky and the hills cast shadows. If, however, we have two successive photographs taken at an interval of about one hundred yards, and showing the same piece of ground on the right-hand side of one print and the left-hand side of the other, then, by arranging these prints in the proper manner, and by looking at them through a stereoscope, we can see the ground common to both in high relief. It is not possible to use two prints from the same photographic negative for this purpose, as the amount of relief seen depends on the distance apart of the centres of the two views and the height from which they were taken, but, given suitable photographs, all the hill and valley features can easily be determined by inspection and even buildings and trees can be seen as standing up from the ground.

Drawing of form lines is also assisted by the study of suitable oblique photographs from which an idea of relative heights can be obtained.

### **Characteristics of the maps Produced.**

The degree of accuracy obtained in maps made from photographs depends upon the number of points on the ground which

have been fixed by triangulation. No complete method has yet been evolved for building up a map from the results of aerial photography, without the help of works done on the ground, though it seems possible that after some experiments and improvements in apparatus, this may be attempted. One very useful sheet showing the country to the East of the River Jordan was compiled from photographs with only six points fixed by ground work, but, in Central Palestine, many more fixed points were available. The one inch, made by Kitchener and Conder, and used wherever possible as a basis for the Palestine 1/40,000 and 1/20,000 series, was of very great utility, for, though the wadis and hills were somewhat sketchy, the positions of villages and certain tombs ruins were accurately fixed in most cases.

For the work of photographic map-making in India, an excellent basis is provided by the great trigonometrical survey which has been made, and by some of the smaller scale maps already published.

Accuracy will also depend very largely on the nature of the country, and a very high degree can be obtained when dealing with an area which is flat. When the country is mountainous, great care has to be taken in obtaining the photographs, and corrections have to be introduced. In Central and Eastern Palestine, however, the country was very hilly and steep, and in spite of this the results were good.

Maps made from photographs usually show very good *relative* accuracy. When an area of perhaps 20 square miles is considered by itself, all the features shown will have their positions correct in relation to one another. If, however, triangulated points are very distant, small errors may creep in, owing to which the latitudes and longitudes of objects shown on the map may differ from their true values from 200 to 300 yards or in some cases 500 yards.

It is however worthy of note that by improvements in methods and apparatus, especially by the introduction of a device for keeping the axis of the Camera vertical in the aeroplane machine, substantial improvement in accuracy has been realised and further advances may be anticipated in this direction.



## ***Aerial Photography,***

The great point in which the photographically made map scores is in the accurate representation of ground detail. Unless the topographical surveyor working on the ground with a plane table has unlimited time and patience, it is impossible for him to give an accurate representation of ground which contains a complex series of Nullahs, or streams meandering among trees; he must generalise. On the other hand it is often the presence of little characteristic items of detail, such as the turns in a Wadi, the shape of an orchard or the outline of a village, which makes it possible for the soldier to recognise his position on the map at a glance. When working from photographs these shapes are put in naturally and without trouble, together with all the Minor Wadi (or Nullah) features.

### **Rapidity of work.**

Topographical photography of an area can be carried out very quickly, given suitable machines and apparatus. Thus, before the Capture of Jerusalem, two machines working together completely photographed 45 square miles of country in the course of one flight, depicting on a scale of about 1/12,000 the country between our forces and the city. From this material a sketch map was produced two days later, giving very useful information for the use of our troops in a very difficult piece of country. Since this time many improvements have been introduced in both aeroplanes and cameras and a single pilot can now photograph 60 square miles in the course of a flight without difficulty. The work in the compilation and drawing office is of course more laborious, but map sheets on a 1:40,000 scale showing country 20,000 X 28,000 yards in extent could be produced by a single officer in six weeks, making use of from 500 to 700 photographs.

### **Maps for special purposes.**

Apart from the production of carefully compiled, machine printed maps, very useful work can be done in the field by drawing up from photographs sketch-maps which illustrate some special feature. These can be very rapidly compiled from suitable photographs and can be duplicated by an Elland's duplicator

or some similar method. It has been found useful to produce, for example, a sketch-map on a scale of 1-10,000 showing the exact nature of the ground, positions of works, tracks, dug-outs, headquarters, machine-guns etc. On some fortified hills or other positions, before exacting a raid on them, sketch maps of another type may similarly be produced from road-reconnaissance photographs, which give the details of streams, nullahs, bridges etc on either side of the road over which an advance is likely to take place.

With suitable arrangements, information obtained by aerial photography can be re-embodied in map form, and rapidly disseminated to all concerned. The above mentioned duplicates enable about 100 copies of a sketch map in three or four colours to be struck off in the course of a few hours, so long as the temperature is not high enough to affect the wax sheets used in this method.

During the Gaza-Beersheba operation in October and November 1917, certain important trench areas were photographed daily between 10,00 and 12,00 hrs, results were examined and any changes in trenches, gun positions, camps, or other features were embodied in map form; this map was reproduced by photography and copies dropped by aeroplanes on headquarters of units between 17,00 and 18,00 hrs the same afternoon.

#### **Application of the Method to India.**

It would appear likely that large scale maps will be required in India in the future, for training if not for operations, and in this work aeroplane photography will be of the greatest assistance. At present the production of a really good map on a scale of 3 inches to the mile entails the labour of resurveying the area, as it is not satisfactory merely to enlarge up the 1 inch to the mile map. Over vast areas, also, the existing maps are very old and a resurvey, which will take many years, is necessary.

The plains and the greater portion of Central India are peculiarly well suited to the work of photographic mapping for the ground is exceptionally flat and the hills which do exist are surrounded by flat country. In addition to this the ground has

## ***Aerial Photography,***

been covered to a very large extent by Triangulation, and additional points can easily be fixed on the ground if necessary.

Systematic photography in India would provide the basis for a set of maps rich in accurate detail. It would also provide material from which maps could be subsequently produced on any desired scale, and would be of great value for local administrative purposes in connection with cadastial surveys.

There are many localities in which it is almost impossible for ground surveyors to produce accurate representations of the surface features. Several large rivers have the habit of periodically changing their beds, and the frequent map corrections necessary involve difficulties and expenses under the old system which would be easily overcome by aerial photography. For a second example we may notice the broken country which borders the River Chumbule, near Dholpur, and through which the railway line running from Jhansi to Agra runs, or that belt of broken land lying between Jhelum and Rawalpindi. In both places we have a veritable maze of nullahs and earth cliffs which can be charted without difficulty by means of vertical photographs taken from the air.

For frontier operations in mountainous country, it seems probable that much might be effected by the possession of complete series of air photographs, from which the full detail of hill and valleys, tracks, streams, cliffs and boulders might be ascertained, together with the maps necessary for using the photographs. Aerial surveys of some of those remote and inaccessible regions to the North of India would be of both scientific and military importance. In other directions also, mapping by aerial photography will take an established place. For making town maps of the congested cities of the east, the aeroplane camera can do, in the course of a few days, work which would entail months, if not years of labour and great expense, if carried out on the ground. This work has been already commenced but will be much facilitated in the near future, when more up-to-date machines and cameras are available.

The utility of aeroplane photography for both military and civil purposes is so great, that the day is not far distant when the photographic survey will be one of the recognised institutions of all civilised countries and when actual photographic prints of the ground with large-scale key maps will be regarded as indispensable as the excellent series of maps which have been provided by our survey Departments in the past.

We may also look for the development of aeroplane photography in connection with the exploration and survey of unknown lands, as well as the production of special air-route maps for use in transcontinental long distance flights.

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The memoirs of Sir Andrew Melvill Edited by Torick Ameer Ali. (The Bodley Head).

(Presented to the U. S. I. by Lt.-Col. Abban Wilson.)

The life-stories of Soldiers of Fortune are invariably entertaining: this one more so than usual; but it is seldom that one finds them presented in a form which renders them highly instructive as well.

In editing the memoirs of Sir Andrew Melvill, Mr. Torick Ameer Ali, whose work commences with a most interesting foreword by Sir Ian Hamilton, has placed them judiciously in a setting of historical narrative and corroborative evidence.

This setting, while in no way interfering with or detracting from the extreme interest of their subject-matter, causes them to reflect a light of no uncertain value on the military and social conditions and on many of the lesser amenities of seventeenth-century war.

The book is admirably divided. After the foreword, and a very brief editorial introduction, comes a short but sufficient historical and political outline of the wars of the seventeenth century: this forming as it were the background for the picture.

Then, forming the picture itself and constituting the bulk of the book, come the actual memoirs, in modern and most readable English; but happily unexpurgated and in clear form. They are innocent of the unfortunate presence, so often met with in like cases, of continual notes and marginal and editorial references.

Lastly, and quite separately, comes a collection of corroborative evidence from other contemporary writers, collated in order of dates so as to be comparable to stated pages in the memoirs: one or two of the references to pages however seem to be slightly in error.

In this form, the book is excellently suited to meet all tastes.

The seeker after pleasant diversion has but to turn direct to the actual memoirs; and their interest is engrossing. The historian may compare them with the historical outline of the Seventeenth Century wars: the military student may find hours of profitable study in first mastering the historical outline, and

then in comparing the memoirs with the corroborative evidence of contemporary writers.

As to the subject-matter of the memoirs themselves, perhaps one feature is of special interest. Sir Andrew Melvill presents to us the mercenary Soldier, who figures so largely throughout the almost bewildering tangle of political wars in the seventeenth century, in a light that must be somewhat new in many quarters.

We have often met such men as unprincipled hirelings, who served themselves first at all times and their masters only in so far as their own eventual benefit demanded; seldom do we meet a man such as Sir Andrew, who served through all his engagements with a degree of honest conscientiousness, worthy of the finer cause of patriotism.

Other points of interest are multifarious: the tale is bristling with them. Sir Andrew fought over many of our modern battle fields of Flanders; he helped to take La Bassée, he was wounded at Lens. Yet he fought for the Germans:— for Brandenburg; and the quality of the modern Brandenburgers has been well known on the Western front this war.

Sir Andrew's tenacity of life would be almost incredible even with the aid of twentieth-century surgery: his capacity for surviving overpowering circumstances, as well as actual wounds, is not less marvellous.

Few men there must be who have been resignedly lined up at a wall, minus their clothing, before a firing party; and have yet escaped through a misfire and a strong pair of legs after firing has actually commenced. This is but a single instance of what the narrative contains.

To trespass further on the subject-matter of the book is unnecessary: the actual memoirs are fully commented upon in Sir Ian Hamilton's descriptive foreword, which alone is worth perusal as a picture in words.

Suffice to say that the volume teems with interest as an exciting tale of adventure, as a historical work, and as a study of the terms and conditions of soldiering two hundred and fifty years ago. It is a book that should have its place in every Regimental Library.

## MacGREGOR MEMORIAL MEDALS.

1. The MacGregor Memorial Medal was founded in 1888 as a memorial to the late Major-General Sir Charles MacGregor. The medals are awarded for the best military reconnaissances or journeys of exploration of the year.

2. The following awards are made annually in the month of June:—

(a) For officers—British or Indian—a silver medal.

(b) For soldiers—British or Indian—a silver medal, with Rs. 100 gratuity.

3. For specially valuable work a gold medal may be awarded in place of one of the silver medals, or in addition to the silver medals, whenever the administrators of the fund deem it desirable. Also the Council may award a special additional silver medal, without gratuity, to a soldier, for special good work.

4. The award of medals is made by His Excellency the Commander-in-Chief as Vice-Patron, and the Council of the United Service Institution, who were appointed administrators of the Fund by the MacGregor Memorial Committee.

5. Only officers and soldiers belonging to the Army in India (including those in civil employ) are eligible for the award of the medal.\*

6. The medal may be worn in uniform by Indian soldiers on ceremonial parades, suspended round the neck by the ribbon issued with the medal.

### Note.

(i) Personal risk to life during the reconnaissance or exploration is not a necessary qualification for the award of the medal; but in the event of two journeys being of equal value, the man who has run the greater risk will be considered to have the greater claim to the reward.

(ii) When the work of the year has either not been of sufficient value or has been received too late for consideration before the Council meeting, the medal may be awarded for any reconnaissance during previous years considered by His Excellency the Commander-in-Chief to deserve it.

### MacGregor Memorial Medallists.

*(With rank of Officers at the date of the Award).*

1889...BELL, Col. M.S., V.C., R.E. (specially awarded a gold medal).

1890...YOUNGHUSBAND, Capt. F.E., King's Dragoon Guards.

1891...SAWYER, Major H. A., 45th Sikhs.

1891...RAMZAN KHAN, Havildar, 3rd Sikhs.

1892...VAUGHAN, Capt. H. B., 7th Bengal Infantry.

JAGGAT SINGH, Havildar, 19th Punjab Infantry.

1893...BOWER, Capt. H., 17th Bengal Cavalry (specially awarded a gold medal).

1893...FAZALDAD KHAN, Dafadar, 17th Bengal Cavalry.

1894...O'SULLIVAN, Major G. H. W., R.E.

MULL SINGH, Sowar, 6th Bengal Cavalry.

\* N.B.—The terms "officer" and "soldier" include those serving in the British and Indian armies and their reserves; also those serving in Auxiliary Forces, such as the Volunteers and Corps under Local Governments, Frontier Militia, Levies and Military Police, also all ranks serving in the Imperial Service Troops.

# *Journal*

OF THE

## *United Service Institution of India.*

Published under the Authority of the Council.



SIMLA:

UNITED SERVICE INSTITUTION OF INDIA.

Published Quarterly.

20000

Price Rupees 2.

Printed by S. H. LIDDELL, Longacre, Simla.



# United Service Institution of India.

## RULES OF MEMBERSHIP.

**A**LL officers of the Royal Navy, Army, Royal Air Force, Colonial Forces, and of the Indian Defence Force, and Gazetted Government Officers shall be entitled to become members without ballot, on payment of the entrance fee and annual subscription.

The Council shall have the power of admitting as honorary members the members of the Diplomatic Corps, foreign naval and military officers, foreigners of distinction, other eminent individuals, and benefactors to the Institution, not otherwise eligible to become members.

Life Members of the Institution shall be admitted on the following terms:—  
Rupees 75 + entrance fee (Rs. 10) = Rs. 85.

Ordinary members of the Institution shall be admitted on payment of an entrance fee of Rs. 10 on joining, and an annual subscription of Rs. 5, to be paid in advance. The period of subscription commences on 1st January.

Subscribing members of the Royal United Service Institution, Whitehall, London, are not liable for entrance fee while the affiliation rules are in force.

Life members receive the Journal of the Institution post free anywhere, but ordinary members only in India. All members may obtain books from the library on paying V. P. postage.

Honorary Members shall be entitled to attend the lectures and debates, and to use the premises and library of the Institution without payment; but should they desire to be supplied with the Journal, an annual payment of Rs. 8, in advance, will be required.

Divisional, Brigade and Officers' Libraries, Regimental Messes, Clubs, and other subscribers for the Journal, shall pay Rs. 8 per annum.

Serjeants' Messes and Regimental Libraries, Reading and Recreation Rooms shall be permitted to obtain the Journal on payment of an annual subscription of Rs. 6.

If a member fails to pay his subscription for any financial year (ending 31st December) before the 1st June in the following year, a registered notice shall be sent to him by the Secretary inviting his attention to the fact. If the subscription is not paid by 1st January following his name shall be posted in the Reading Room for six months and then struck off the roll of members.

Members joining the Institution on or after the 1st October, will not be charged subscription on the following 1st January, unless the Journals for the current year have been supplied.

Members are responsible that they keep the Secretary carefully posted in regard to changes of rank and address. Duplicate copies of the Journal will not be supplied free to members when the original has been posted to a member's last known address, and not been returned by the post.

Members or Subscribers to the Journal, intimating a wish to have their Journals posted to any address out of India, shall pay in advance Rupee 1 per annum, to cover foreign postage charges, but Life Members who have left India shall not be liable for foreign postage on Journals.

All communications shall be addressed to the Secretary, United Service Institution of India, Simla.

## Contributions to the Journal.

All papers must be written in a clear, legible hand, and only on one side of the paper. All proper names, countries, towns, rivers, etc., must, when in manuscript, be written in capital letters. All plans must have a scale on them.

Contributors are responsible, when they send articles containing any information which they have obtained by virtue of their official positions, that they have complied with the provisions of A. R. I., Vol. II., para. 487, and King's Regulations, para. 453.

Anonymous contributions under a *nom-de-guerre* will not be accepted or acknowledged; all contributions must be sent to the Secretary under the name of the writer, and the paper will, if accepted, be published under that name unless a wish is expressed for it to be published under a *nom-de-guerre*. The Executive Committee will decide whether the wish can be complied with.

The Committee reserve to themselves the right of omitting any matter which they consider objectionable. Articles are only accepted on these conditions.

The Committee do not undertake to authorise the publication of such papers as are accepted, in the order in which they may have been received.

Contributors will be supplied with three copies of their paper *gratis*, if published.

Manuscripts of original papers sent for publication in the Journal will not be returned to the contributor, unless he expresses a wish to have them back and pays the postage.

# United Service Institution of India.

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His Excellency the Viceroy and Governor-General of India.

## VICE-PATRONS.

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 His Excellency the Governor of Bengal.  
 His Excellency the Commander-in-Chief in India.  
 His Honour the Lieut. Governor of the U. P. of Agra and Oudh.  
 His Honour the Lieut. Governor of the Punjab.  
 His Honour the Lieut. Governor of Burma.  
 His Honour the Lieut. Governor of Bihar and Orissa.  
 His Excellency the Naval Commander-in-Chief, East Indies.  
 General Sir A. A. Barrett, G.C.B., K.C.S.I., K.C.V.O., A.D.C.  
 Lieut.-General Sir C. A. Anderson, K.C.B., A.M.

## MEMBERS OF THE COUNCIL, 1919-20.

### *Ex-officio Members*

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|---|--|

### \*Members of the Executive Committee and in addition:—

Lieut.-Colonel G. M. Molloy.	Major A. V. Gompertz, M. C.
Major A. C. Ogg, D.S.O.	Major G. L. L. Mayo.

**SECRETARY & EDITOR MAJOR MAJOR (Temp. Lt.-Col.) C.E.L. JOHNSTON R.A.**  
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1. The United Service Institution of India is situated at Simla.
2. Officers wishing to become members of the United Service Institution of India should apply to the Secretary. The rules of membership are printed on the opposite page.
3. The reading-room of the Institution is provided with all the leading newspapers, magazines, and journals of military interest that are published. War maps are on view in the Reading Room, with the positions of the troops, so far as is known, marked with flags, in each theatre of war.
4. There is a well-stocked library in the Institution, from which members can obtain books on loan, free. Suggestions for new books are solicited, and will be submitted to the Committee. Books are sent out to members V. P. for the postage, or bearing by railway.
5. The Institution publishes a Quarterly Journal in the months of January, April, July and October which is issued postage free to members in India and to all life members; but ordinary members wishing to have their journals sent to any address out of India must pay in advance Re. 1 per annum to cover foreign postage charges.
6. Members and the public are invited to contribute articles to the Journal of the Institution for which honoraria will be awarded by the Executive Committee. Rules for the guidance of contributors will be found on the opposite page.
7. MEMBERS ARE RESPONSIBLE THAT THEY KEEP THE SECRETARY CAREFULLY POSTED WITH REGARD TO CHANGES OF ADDRESS.
8. When on leave in England, members can, under the affiliation rules in force, attend the lectures and make use of the reading-room, etc., of the Royal United Service Institution, Whitehall, on payment of a subscription of 5 shillings per six months.

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# United Service Institution of India.

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JULY 1919.

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## SECRETARY'S NOTES.

### I.—New Members.

The following members joined the Institution between the 3rd March 1919 and 23rd June 1919:—

#### LIFE MEMBERS.

Lieut. Kenny, W. D.

Lieut. Bevis. F. G.

Lieut. Trott. W. A.

#### ORDINARY MEMBERS.

Captain Lanktree, H. R.

Lieut. Amies, B. J.

Major Coaker, V. A.

Lieut. Ewers, L. F.

Br.-Gen. MacEwen, N. D. K.

Major Clifton, A. J.

Lieut.-Col. Johnston. C. E. L.

Captain Johanson, J. L.

Captain Rayner, R. H.

Major Hobson, J. W. S.

Lieut. Stevens, A. E.

Lieut. Cole, R. St. G.

Captain Thorn, A. P.

Lieut. Wilton, C. E. P.

**II.—Tactical Problems.**

In order to assist officers working for tactical examinations, the Institution has schemes with maps and solutions for issue to members only, at Rs. 2-8-0 each. 26 different schemes are now available.

**III.—Maps.**

The Institution has for sale a variety of large scale maps (1 and 4 inches to one mile), price As. 8 each.

They are specially useful for instruction in map reading, tactical schemes and in preparation for examinations, maps of both English and Indian countries are available.

**IV.—Premia for Articles in the Journal.**

Articles accepted for publication in the Journal are paid for, and a sum of approximately Rs. 400 is awarded for articles and reviews published in each Quarterly Journal.

**V.—Contributions to the Journal.**

With reference to Army Regulations, India, Volume II, paragraph 487, and King's Regulations, paragraph 453, as amended by Army Order 340 of 1913, intending contributors to the Journal of the United Service Institution of India are informed that action to obtain the sanction of His Excellency the Commander-in-Chief to the publication of any article in the Journal of the United Service Institution of India will be taken by the Committee. Contributors are, therefore, responsible that the sanction of their immediate superior has been obtained, and this should be noted on all articles sent for publication. Articles need not be submitted in duplicate.

Contributors must have their articles either typed or printed.

**VI.—Library Catalogue.**

The library catalogue revised up to 1st January 1916 is now available. Price Rs. 2 or Rs. 2-4-0 per V.P.P. A list of books received each year is published with the January Journal.

**VII.—Gold Medal Prize Essay 1919-20.**

For subject and conditions please See page vi.

**VIII. Subscriptions.**

The attention of all members is particularly called to Rule vi-9.

It will be seen from the Balance Sheet for 1918 and the Budget Estimate for this year issued with this number that Rs. 2386 was written off in 1918 as a bad debt, and that the sum of Rs. 3100 in addition is now outstanding. Further, the running expenses of the Institution are increased by employing additional staff to deal with overdue subscriptions.

## **Secretary's Notes.**

iii

The exceptional circumstances of the war have been recognised and Rule 9 has not been enforced, but the Council hope, now that more normal conditions are restored, that all overdue subscriptions will be paid without delay.

All members, who at present pay their subscriptions by cheque or M. O. are asked to adopt the method of paying by Banker's Order, which saves clerical labour in the office of the Institution and is a safeguard against the payment of subscriptions being forgotten.

### **IX.—Change of Address.**

Many complaints have reached the Secretary of non-delivery of the Journal.

Before the Journal is issued all addresses are checked as far as is possible by the Army List but it is the duty of members ( Rule 11 ) to inform the Secretary of each change of address, and the Secretary will be glad to receive now the present addresses of all members who have not been receiving the Journal regularly.

### **X.—List of New Books.**

<i>Title</i>	<i>Author</i>	<i>Section and No.</i>
Guide to the Turf.	Ruffs	K. 72
The Navy Eternal.	Bartimeus	P. 71
The Navy in Battle.	Arthur Hungerford-Pollen	P. 69
Five Years in the Royal Flying Corps.	J.T.B. McCudden	L. 18
British Campaigns in the Near East.	Edmund Dane	M. 928
Indian Year Book 1919.	Sir Stanley Reed, L.S.D.	Q. 252
On Four Fronts with the Royal Naval Division.	G. Sparrow, M. C. and J. N. MacBean Surgeon, R. N.	P. 74
Daily Mail Year Book 1919.	D. Williamson	Q. 253
Notes on Indian Reform Proposals.	Sir S. P. Hewitt, G.C.S.I.	N. 393
A Modern Pilgrim in Mecca.	A. J. B. Wavell, F.R.G.S.	F. 358
The Fifty-First in France.	Captain R. B. Ross, Gordon Highlanders.	M. 929
Empire Builder of the 16th Century.	L. F. Rushbrook Williams, B. A.	N. 394
Whitakers Almanac 1919.	Joseph Whitaker.	Q. 254
The British Fleet in the Great War.	Archibald Hurd.	P. 70

**Secretary's Notes.**

My German Prisons.	Capt. H. C. Gilliland, Loyal North Lance: Regt. K. 192
Secrets of the Bosphorus.	Ambassador Henry Morgenthau. P. 72
The German Road to the East.	Evans Lewin M. 930
A Little Ship.	" Taffrail " K. 190
Indian Studies.	General Sir O'Moor Creagh. N. 395
War and Revolution in Russia 1914-1917.	General Basil Gourko. M. 931
Nelsons History of the War.	John Buchan (Vols. 21 & 22). M. 871

**XI.—Council Meetings.**

A Meeting of the Council was held on the 23th June, 1919.

**XII.—Presentations to the Institution.**

The Council gratefully acknowledge the receipt of the following publications:—

- Presented by the publishers Messrs Gale and Polden, Ltd.
- Smoke Tactics by Lt.-Col. P. R. Worrall D.S.O.M.C.
- The Investigation of Charges in the R. A. F. by O. C. Cheslire, M.A., B.C.L.
- Practical Notes on Courts of Enquiry etc. by W. F. Cox.
- The Hotchkiss gun.
- The Lewis gun.
- Horse Management in the Field at Home and Abroad, by Lt.-Col. E. D. Miller D.S.O. Pembroke Yeomanry.
- Twelve Lectures on the Care of Horses by Lt.-Col. Holdsworth 7th Q. O. Hussars.
- Presented by the publishers Messrs Thacker, Spink & Co.
- Fish and Fishing in Kulu.

**XIII.—Library Rules.**

The Library is open daily from 9-30 a. m. to sunset. The Librarian is present between 9-30 a. m. and 1 p. m. and from 4 p. m. to 7 p. m. on week days, and on Saturdays between 9-30 a. m. and 2-30 p.m.

When the Librarian is not present, members can take books out personally and sign for them in the registrar kept for the purpose.

Rule 3 of the Library rules will be amended in due course.

**XIV.—Erratum.**

The 2 Sketches on page 144 of the April Journal have been incorrectly placed.

The position at 5 p.m. was as shown in sketch No. 2 and vice versa.

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## United Service Institution of India.

### GOLD MEDAL ESSAY COMPETITION 1919-20.

The Council have chosen as the subject for the Gold Medal Essay for 1919-20 the following:—

Under K. R. 106 Commanding Officers are responsible for the systematic and efficient instruction of officers under their command in all professional duties, and for their due preparation for examination for promotion.

Having regard to the extended scope of an officer's professional duties since the war, is the system above indicated the one best calculated to secure the efficiency to be arrived at, and if not, what system of instruction should take its place?

The following are the conditions of the competition:—

- (1) The competition is open to all gazetted officers of the Civil Administration, the Navy, Air Force Army, or Indian Defence Force who are members of the U. S. I. of India.
- (2) Essays must be printed or type-written and submitted in *triplicate*.
- (3) When a reference is made to any work, the title of such work is to be quoted.
- (4) Essays are to be *strictly anonymous*. Each must have a motto, and enclosed with the essay there should be sent a *sealed* envelope with the motto written on the outside and the name of the competitor inside.
- (5) Essays will not be accepted unless received by the Secretary on or before the 30th June 1920.
- (6) Essays will be submitted for adjudication to Referees chosen by the Council. No medal will be awarded if the Council consider that the best essay is not of a sufficient standard of excellence.
- (7) The name of the successful candidate will be announced at a Council Meeting to be held in September or October 1920.
- (8) All essays submitted are to become the property of the United Service Institution of India, *absolutely*, and authors will not be at liberty to make any use whatsoever of their essays without the sanction of the Council.
- (9) Essays should not exceed about 15 pages of the size and style of the Journal, exclusive of any appendices, tables or maps.

By order of the Council,

SIMLA

C. E. L. JOHNSTON, LT. COL.

30th June 1919. }

Secretary, U. S. I. of India

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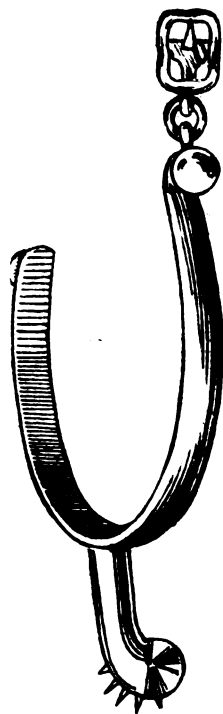
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# United Service Institution of India.

## PRIZE ESSAY GOLD MEDALLISTS.

*(With rank of Officers at the date of the Essay)*

- 1872...ROBERTS, Lieut.-Col. F. S., V.C., C.B., R.A.  
1873...COLQUHOUN, Capt. J. A. S., R.A.  
1874...COLQUHOUN, Capt. J. A. S., R.A.  
1879...ST. JOHN, Maj. O. B. C., R.E.  
1880...BARROW, Lieut. E. G., 7th Bengal Infantry.  
1882...MASON, Lieut. A. H., R.E.  
1883...COLLEN, Maj. E. H. H., S.C.  
1884...BARROW, Capt. E. G., 7th Bengal Infantry.  
1887...YATE, Lieut. A. C., 27th Baluch Infantry.  
1888...MAUDE, Capt. F. N., R.E.  
YOUNG, Maj. G. F., 24th Punjab Infantry (especially awarded a silver medal).  
1889...DUFF, Capt. B., 9th Bengal Infantry.  
1890...MAGUIRE, Capt. C. M., 2nd Cav., Hyderabad Contingent.  
1891...CARDEW, Lieut. F. G., 10th Bengal Lancers.  
1893...BULLOCK, Maj. G. M., Devonshire Regiment.  
1894...CARTER, Capt. F. C., Northumberland Fusiliers.  
1895...NEVILLE, Lieut.-Col. J. P. C., 14th Bengal Lancers.  
1896...BINGLEY, Capt. A. H., 7th Bengal Infantry.  
1897...NAPIER, Capt. G. S. F. Oxfordshire Light Infantry.  
1898...MULLALY, Maj. H., R.E.  
CLAY, Capt. C. H., 43rd Gurkha Rifles (specially awarded a silver medal).  
1899...NEVILLE, Col. J. P. C., S.C.  
1900...THULLIER, Capt. H. F., R.E.  
LURBOCK, Capt. G., R.E., (specially awarded a silver medal).  
1901...RANKEN, Lieut.-Col. G. P., 46th Punjab Infantry.  
1902...TURNER, Capt. H. H. F., 2nd Bengal Lancers.  
1903...HAMILTON, Maj. W. G., D.S.O., Norfolk Regiment.  
BOND, Capt. R. F. G., R.E., (specially awarded a silver medal).  
1904...MACMUNN, Maj. G. F., D.S.O., R.F.A.  
1905...COCKERILL, Maj. G. K., Royal Warwickshire Regiment.  
1907...WOOD, Maj. E. J. M., 99th Deccan Infantry.  
1908...JEUDWINE, Maj. H. S., R.A.  
1909...MOLYNEUX, Maj. E. M. J., D.S.O., 12th Cavalry.  
ELSMIE, Maj. A. M. S., 56th Rifles, F. F., (specially awarded a silver medal).  
1911...Mr. D. PETRIE, M.A., Punjab Police.  
1912...CARTER, Major B. C., The King's Regiment.  
1913...THOMSON, Major A. G., 58th Vaughan's Rifles (F. F.)  
1914...BAINBRIDGE, Lieut.-Col. W. F., D.S.O., 51st Sikhs, (F. F.)  
NORMAN, Major C. L. M.V.O., Q. V. O. Corps of Guides (specially awarded a silver medal).  
1915...No award.  
1916...CRUM, Major W. E., V.D., Calcutta Light Horse.  
1917...BLAKER, Major W. F., R. F. A.  
1918...Gompertz, Capt. A. V., M.C., R.E.

# The Journal

OF THE

## United Service Institution of India.

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Vol. XLVIII.

JULY 1919.

No. 216.

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### **MARINE TRANSPORT WORK.**

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By

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The interesting lecture by General St. John in the United Service Journal for January 1919 prompts me to offer an article on the work of Marine or as it is now officially, styled Naval Transport with a view to putting some of the difficulties of that Section of Embarkation work before our Members. There is little doubt, that on the outbreak of War in 1914 that great mass of regimental Officers of the Army had very little idea of the amount of preliminary organisation, preparation, and training required to enable the Transport Department to undertake at the shortest possible notice the movement of large bodies of troops overseas with the accompanying volume of guns, vehicles, animals, and stores necessary for a completely independent unit. Indeed, it may be admitted that the Marine Transport Department, which existed in India as an organised unit and which had had the benefit of the experience gained in the S. A. and China wars, did not itself realize the enormous work, which the European war would place upon it.

In this article when referring to Transport, Sea Transport is meant and the Transport Department is the Marine Transport as drawn from the R. I. M. Service, which has performed the whole of the Sea Transport work for India and only lately (December 1918) been amalgamated with the Naval Transport Service under the Ministry of Shipping. Prior to the outbreak of war a very considerable amount of preliminary work had been done at the Bombay and Calcutta Dockyards towards the fitting out of Expeditions. For instance, lists of suitable vessels for each class viz., Troops, Animals, or Stores were drawn up and kept ready with full particulars as

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to their dimensions etc., A large stock of Transport fittings such as Washhouses, Latrines, Horse and Mule Fittings, Boats, etc., were ready and these were all of Standard Pattern. Such preparations anticipated the movement of a Division at the most, and only such vessels as were suitable and in accordance with various Transport requirements were on the list. When it came to finding ships for nearly 3 Divisions the preparations were of course inadequate. Moreover, the difficulty of finding enough ships forced the authorities to accept many, which otherwise would never have been considered. Standard pattern fittings were in many cases unsuited to these ships which were of antiquated design and deficient in up-to-date appliances. Vessels with iron decks had to be taken for the carriage of troops and also vessels with insufficient (in the light of modern ideas) ventilation. Horses were carried in ships which had not the proper height of tween decks—in fact it was a case of taking what one could get and making the best of it. That the difficulties of the Transport Department were not fully realised is apparent from the number of complaints received from Commanding Officers of Troops. Some of them would have been considered serious complaints in normal times; at the time referred to they could not be avoided. And some were quite comical. Witness the O-C who complained that he could not sleep, because the balancing weights in-side the casing of his cabin windows made such a noise with the rolling of the vessel! If the difficulty of finding enough ships was great it was even more difficult to find suitably trained and experienced Officers to take charge of, organise, and run each Transport Base. General St. John in his lecture has laid great stress on the qualities required from a good Transport Officer and I cordially agree with his opinion. Tact, energy, good temper, as well as firmness and experience are very necessary qualities. And it must be remembered, that it is not only at the Embarking base that such Officers are needed. They are required even more at the point of disembarkation, especially if it be in a foreign Country, or on a beach or in in a Harbour devoid of appliances and

possibly hostile. In the European War The Marine Transport Department was required to furnish base Staffs for Bombay, Karachi, Calcutta, Rangoon, and Madras, as well as overseas staffs for Egypt, France Mesopotamia and East Africa. The Department found the Officers, but the R. I. M. Service had to be augmented and the Mercantile Marine was drawn upon for this purpose. And here I may record, that some of the Officers so recruited have rendered the most splendid service and all of them had very great experience of the work of loading and unloading ships.

But having overcome the initial difficulty of finding enough men to run the Transport Department and enough ships to carry your troops and stores and animals your troubles are only beginning. The next difficulty is to reconcile the requirements of the Military Authorities with the capacities and capabilities of the ships themselves. Every Commanding Officer of a unit, be it a Regiment, Battery or Company wants naturally to keep his unit together and every Transport Officer's first duty is to make the utmost use of the carrying capacities of his ships. This is where the perfect harmony and co-operation between the two services mentioned by General St. John as the "sine qua non" of successful embarkation work comes in and this is where perfect harmony is very difficult to attain. I remember at a certain conference held on one occasion between the authorities representing both services to consider the allocation of units composing 2 Divisions to the available shipping, the Chief Military Authority laid down as a primary rule that all Military Units must be accompanied by their "First Line Transport". It was pointed out that to enable this to be done ships would have to be provided with a certain number of horse fittings and that great delay would be necessary to provide and fit up this accommodation. As at the post in question there was no Rest Camp accommodation and the troops were required to embark direct from the train, the above desirable rule could not be enforced more particularly as at the time shipping was being sunk at an alarm-

ing rate by the Enemy Submarines and a day's delay to a ship generally resulted in curt enquiries from Head Quarters.

But the difficulty of reconciling Military requirements with available ship accommodation is very much accentuated by the absolute necessity of deciding at once, when a ship is taken up, how she is to be fitted. It is impossible to wait until every detail to be embarked is known and the order in which they will arrive at the port of embarkation. The only possible solution is to inspect your ship decide on the best use, to which she can be put, and then fit her and so split up your units as to fill the ship with the least possible inconvenience to the troops.

Even then, when you are confronted with the necessity of embarking units, as they arrive at the port of embarkation, it is impossible to avoid certain incongruities, as was well illustrated by the embarkation of the Meerut and Lahore Divisions when transferred from France to Mesopotamia. Numerous cases occurred of units arriving in Mesopotamia without their Medical accompaniments, due entirely to the above cause, which caused great delay in forwarding them to the front and very serious consequences. It is believed that these Divisions were originally intended to land in Egypt for reorganisation and redistribution but the necessities of the situation in Mesopotamia prevented this being done. This shows some of the difficulties to be overcome in the embarkation of a large force in anything but selected shipping and from a properly equipped base. Numerous other difficulties present themselves. With mixed forces i. e. composed of British and Indian troops the difficulty of filling the ships properly without carrying both types on the same ship and the disadvantage of doing this is illustrated by the necessity of providing 2 types of cooking houses, wash houses and latrines, all of which take up the valuable deck space which O-C Troops requires for drill and exercise necessary to keep his men fit. The present War and large number of Transports employed proved altogether beyond the capacities of the two Government Dockyards in India. R. E., Railways, and Private Contrac-

tors had to be employed to provide the enormous number of special fittings required and it was practically impossible to ensure that the Government standard was worked to in all cases. The work of the enemy's submarines rendered all previous percentage of boats and life saving appliances inadequate. Early in the War the order was given that boats or rafts for all were to be carried and all sorts of rafts and boats were constructed or brought up to meet the demand. Many O-C's complained bitterly of the almost complete absence of deck space for their men, the usual spaces being occupied by these rafts. These troubles disappeared in course of time; a standard type of rafts was adopted and a special stowing place was built above the decks to carry them. Later interchangeable fittings were devised for Indian ships which enabled the ship's company to transform their ship from a British to an Indian Troops carrier and vice-versa in the shortest possible time and without having recourse to a Dockyard. And it is remarkable what a very small percentage of Indian Transports were lost. In the 4 years of War no single case occurred of the loss of an Indian Troop ship through stranding or ordinary sea risks. Some Indian ships were torpedoed in the Mediterranean with small loss of life. One Indian Transport caught fire when carrying troops: no lives were however lost and the vessel was saved and brought into port. It is remarkable also and a matter of great congratulation, that no Indian troops Transport was torpedoed or struck a mine when carrying troops in Indian waters. A Store ship was sunk in this latter way off Bombay and the Captain was killed, and two empty ships were sunk by the "Emden" when on their way from Calcutta (where they had been fitted) to Bombay.

The services of the Masters and Officers of the Indian ships have been beyond praise and the above splendid record is undoubtedly due in a very great manner to the care and vigilance invariably shown by them.

One of the largest Sections of the work of Marine Transport is the provision of the enormous quantity of coal required



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for the vessels. Early in the War, Transports were provided with sufficient coal to carry them to their destinations and back again the extra amount being carried in the vessels holds and worked into bunkers by the ships people. This was very economical when the number of freighters available was ample for the Empire's requirements, but here again the submarine war had its effect. Every inch of cargo space on a vessel became of importance and space for extra coal could not be spared and arrangements to coal transports at oversea ports had to be made. Some idea of the amount of coal required to keep the transport Service going may be gathered from the fact that about 100,000 tons is required at the ports of Bombay and Karachi alone per month. The provision of this large quantity, the storage and handling, and the keeping of the accounts requires quite a large staff of officers and men. The carriage from the coal Fields is a big business and when the shortage of sea tonnage began to be felt, this was undertaken by Railways entirely. Latterly, however, the Transport Service has resumed a percentage of this work of carrying round coal from Calcutta to the Western Ports by sea. An attempt to introduce oil fuel to replace coal was also made but the difficulty of supplies in the present shortage of tonnage prevented its adoption.

The Transport Department had however until quite recently four ships on the Bombay-Busra run burning oil.

To the difficulties already described must be added an additional and very great difficulty connected with the carriage of Military Stores and supplies for the Forces in the Field, who were dependent upon India. A large number of store ships were employed early in the War. The old system of placing them in their loading berths and loading them to their fullest capacity irrespective of draft was not in the present war possible in all cases. Mesopotamia was a country practically without supplies. Very nearly all food, fodder, and firewood for the troops had to be provided from India. Add to this timber of all sorts and sizes for military works, bridging, building and railway material for

railways and the same kind of stores for the development of Busra Port, huge quantities of rolling stock for Railways, and steam boats barges and every kind of small river craft for the River Transport, and one gets some idea of the problem which confronted the Transport Department, which has to load the ships. To make things worse a limit draft of 19'6 had to be imposed on all vessels crossing the Bar of the Shall-el-Arab for Busra. Thus, you may have a ship capable of carrying 7000 tons deadweight on a draft of say 25 to 26 feet and you have to load her so that she leaves port without an inch of space unoccupied (and this applies also to her deck space on which most of the rolling stock and boats were carried) and yet at the same time she must not exceed a draft of 19'6. That these difficulties were surmounted and surmounted successfully reflects great credit on the staff responsible. The Admiralty Commissioner who was deputed from England to report on the methods of Transport work at Bombay reported that he was unable to suggest any improvements and that the procedure in force was equal to that of the best shipping firms with which he has acquainted. As he was the Director of the British India Co. the verdict had some weight. The carriage of stores to Mesopotamia reached at its height a volume of over 120000 Tons dead weight monthly. As the difficulties of the Admiralty in the provision of sea tonnage became more acute, Transport Officers throughout the Empire were called upon to assist by every means in their power to get over the situation which was grave. Indeed there was no aspect of the War as it effected India which did not re-act in some form or other on the Marine Transport Department, A short account of some of the methods adopted may be given. Nearly all large modern vessels were removed from the Bombay Busra run and sent Home, small China Coasters being substituted in their places, as well as Russian and Dutch steamers. This, while simplifying the draft problem introduced a considerable amount of extra work in loading and unloading and also trouble due to antiquated cargo appliances. A wooden Nova- Scotian five masted

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schooner with twin motor driven propellers was put upon the same run and was most useful in the carriage of timber.

A very successful method of economy was adopted which had its origin in India, namely the turning of Hospital Ships into Ambulance Transports. The Hospital Ships, as such, can only be used under the "Geneva Convention" for the carriage of bona fide invalids; this meant, that such ships had to be sent empty to the Theatre of War for the evacuation of sick to their bases.

A large amount of tonnage was locked up for this purpose. The case was carefully considered and in view of the fact that the "Geneva Convention" gave practically no protection against the enemy a scheme for the conversion of Hospital ships into Ambulance Transports, which would tend to economise tonnage was submitted to, and eventually accepted by, the Authorities in England. The scheme in short was this:—to leave the hospital fittings and Medical Staff on the ship but to paint out all the distinguishing signs, which mark a Hospital ship, and to notify the enemy, that the ship had been withdrawn from the list of Hospital Ships, which meant that she was liable to seizure, and if a Transport, to attack by the Enemy. These ships therefore on their voyage to Mesopotamia were able to be utilized for troops and the carriage of stores, and the joint service of Ambulance Transports subsequently carried about 3000 men a month, combatants, on their return voyages to Mesopotamia.

Later on in the War the question of Tank tonnage for the carriage of Liquid Fuel, the supply of which was most essential for the Navy, became very scarce, and to supplement the same, the double bottoms of ordinary cargo steamers which were originally constructed for the carriage of water ballast were utilized, with slight alterations, for the carriage of liquid fuel. In Bombay alone some 33 ships were made adaptable for this purpose and from January 1918 to January 1919 some 48,000 tons of Liquid Fuel were carried to India by Transports. Large numbers of Transports loaded commer-

cial cargoes also and saved a considerable sum of money besides relieving the shortage of food stuffs. To show the problems that Transport Officers had to deal with at various times, I quote one instance which occurred in early 1918; the H. T. "Hinsang" was loading a full cargo of timber for Busra, and, when she had nearly completed loading, an urgent request was received from the Military Authorities to send 250 tons of rails very urgently to Busia; it was impossible to meet the situation by any other Transport, as none were immediately available. In normal times the idea of loading rails on the top of timber would have been scouted but, as I have tried to express in the above article, nearly all the problems have been abnormal with the result, that the 250 tons Rails were sent in safety to Basra by the "Hinsang", a little timber from the Squares of the Hatches was taken out, and a few rails loaded in lieu, the remainder being carried as deck cargo; the latter had to be loaded one side at a time and the list taken by the steamer carefully watched until the quicker response cautioned the authorities concerned that more top weight could not be added without prejudicing her safety.

Close touch with the Ministry of Shipping was essential and this of course meant continuous and long telegraphic correspondence and in spite of the greatest care, that was exercised both in London and out here, certain amusing misunderstandings occasionally took place. I remember one instance in particular when London telegraphed out their programme of ships for the ensuing month for lifting grain and flour for Egypt and Salonika. The Admiralty nominated three ships one of which carried 6,000 tons and the remaining two 2,000 tons each, against 6,000 tons of grain and 4,000 tons of flour that had to be lifted. A request was sent Home that the two small ships should be sent to Bombay and the larger ship to Karachi. The name of the ship allotted to Bombay was the Danish vessel "Valkryie" and as time went on and no news was received of her having left Suez, a reminder was sent to England which only drew a query asking the particulars of the steamer, and

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we eventually ascertained that there was no such steamer at all. The actual history of the first telegram allotting her to India must lie buried for ever in the Official Records!

Another amusing instance which occurred was a letter from a certain Government Department asking by what authority Russian undesirables were being permitted to leave Mesopotamia and after much delving it transpired, that what gave rise to the question was that that Department had received a plain statement—merely that the “Iwan Asbeleff” had left Basra—and had assumed that the above wire referred to a man and not a steamer.

The above are some of the problems which confronted the Transport Department in this great War though it does not by any means represent the whole of them.

Transport were used for all sorts of services ranging from the carrying of Pilgrims to Jeddah, carriage of Labour Corps, Prisoners of every nationality to all parts of the globe, attending on men of war as store ships, and some were even converted into Patrol Steamers and Mine Sweepers while many were employed in the towage of river craft to Mesopotamia. They had to be armed and camouflaged and fitted with wireless. Horses, Mules, Camels, Sheep, Goats, and Bullocks were carried. Indeed there is hardly any use to which a ship can be put, which had not to be used at some time or other. That the Masters and crews were equal to every call made upon them is only another instance of the wonderful work put in by the country's Mercantile Marine during this War.

May they receive their due reward.

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## **MODERN MILITARY RIFLES.**

BY

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In the following pages it is proposed to discuss the chief characteristics of Modern Military Rifles and to forecast, as far as possible, further developments.

Within the last thirty years the tendency has been to decrease the weight, length and calibre of Military Rifles.

**Weight.** Whereas the average weight of the rifle in use by the more important European powers in 1885 was 9 10-16 lbs, it is now 9 1-16 lbs.

The heaviest in 1885 was the German Mauser 10 3-16 lbs, and the lightest the British Martini Henry 9 lbs.

The heaviest in 1918 is the Danish Krag-Jorgensen 9 12-16 lbs, the lightest the British Short Magazine Lee Enfield 8 2-16 lbs.

**Length.** In 1885 the mean length was 6 feet with bayonet and 4 ft. 2 inches without bayonet.

In 1918 the mean length is 5 ft. 2½ inches with bayonet and 4 ft. 1½ inches without bayonet.

The longest in 1885 was the Italian Vetterli 4 ft. 6 inches, the shortest the British Martini Henry 4 ft. 1½ inches.

The longest in 1918 in the Danish Krag-Jorgensen 4 ft. 4 inches, the shortest the British Short Magazine Lee Enfield 3 ft. 8½ inches.

**Calibre.** The largest in 1885 was the American Springfield and the British Martini-Henry .450" calibre. The smallest the Serbian Mauser .400" calibre.

In 1918 the largest is the Austrian Manlicher and the French Lebel .315" calibre. The smallest is the Mexican Mondragon .198".

The reduction in weight length and calibre is due to-

1. The introduction of nitro-cellulose and nitroglycerine powders.

2. The long range and flat trajectory of the rifle discounting to some extent the use of the "Arme blanche".

1. The introduction of Nitrocellulose and Nitroglycerine powders has enabled a slow burning propellant to be used, the volume of gas being increased gradually so that the pressure on the bullet is progressive during its passage down the bore. With the old black powders the evolution of gas was instantaneous and the bullet and the chamber were subjected to a violent and instantaneous pressure.

2. The rifle some fifty years ago was used somewhat in the nature of a pike; infantry fought in two or more ranks and the weapon had to be of sufficient length to enable the rear rank to fire without danger or inconvenience to the front rank. The bayonets of the two ranks required to be sufficiently advanced so as to offer a hedge of steel to the charging cavalry.

It is considered that with the rapidity with which the rifle can now be fired and the increased accuracy and flatness of the trajectory of the bullet, infantry, unless taken unawares, should be able to prevent cavalry from charging home.

**Barrels.**— Are made of special steel and are forged or rolled, the bore being bored and rifled.

The modern tendency is to put as much weight as possible into the barrel, particularly near the breech end, so as to withstand the shock of the discharge.

The greater the thickness of the barrel the more constant will be the vibrations, the whip or flip will be decreased, and consequently the ballistics will be better.

It pays in the long run to put as much money as possible into the barrel and its manufacture so as to secure a high grade steel and to harden and temper the steel by the aid of the most improved and scientific methods, by this means alone can the erosion and stresses to which the steel is subjected, be controlled and legislated for.

**Stocks.** Spanish Walnut is the wood most commonly used for the stocks of rifles. It machines well, does not warp, and is of a dark, handsome colour. In view of a possible shortage of

the above wood, many alternative woods have been tried at Home and in India, some of which should prove suitable.

The rifles of most nations are fitted with a stock in one piece, the advantage of this being that the butt cannot work loose, should the wood shrink; it will be remembered that "loose butts" were prevalent with the Martini Henry and Lee Enfield rifles, causing erratic shooting. In the Short Magazine Lee Enfield rifle the butt is kept tight by the stock bolt being incapable of rotating owing to its squared end fitting into a keeper plate in the rear end of the foreend.

Divided stocks are more economical to manufacture as there is not so much wastage of wood, further, if the foreend or butt becomes unserviceable, that part alone need be replaced; whilst in a stock in one piece, if the butt or foreend is irretrievably damaged, the whole component is waste. The stock bolt passing through the small of the butt strengthens the butt at its weakest point in rifles in which the butt and foreend are in two pieces.

**Magazine.** All rifles are now provided with a magazine consisting of (a) A box fixed either horizontally or vertically in the body or (b) a tube fixed under the barrel.

The Danish Krag-Jorgensen is a type of a rifle with a horizontal magazine, the disadvantage of which is that cartridges cannot be loaded into the magazine from a charger or clip. Mannlicher, Mauser and Enfield Rifles are types of the vertical magazine rifles. The French Lebel is a type of the tube loading rifle. The disadvantages of a tube loading rifle are that the cartridges cannot be fed into the tube by a charger or a clip, the balance is altered after each round and the pointed bullet is apt to detonate the cartridge against which it rests, should the rifle be subjected to a sudden jar.

**Clips and Chargers.** A clip is forced into the magazine with the cartridges, the cartridges are swept out of a charger into the magazine.

All rifles are loaded with a clip and charger except—



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French—Lebel.

Danish—Krag

Canadian—Ross.

The advantages of chargers and clips are—

- (1) Rapidity of loading.
- (2) Less likelihood of loss.

Disadvantages of chargers and clips—

- (1) Extra weight.
- (2) Extra bulk.

A cardboard box holding 20 rounds of 303-inch Ammunition in chargers weighs 1 lb. 6 oz. the same number of rounds in packets weigh 1 lb. 3½ ozs.

A box of S. A. A. holding 1100 rounds of ball ammunition 303-inch in packets will only hold 840 in chargers.

This extra weight does not appear material when dealing with small quantities but gains in importance when large numbers of troops are under consideration.

If a force of 200000 British soldiers took the field with 350 rounds per rifle in chargers, the weight of the latter alone would be 170 Tons.

The extra weight and bulk adds considerably to the transport as will be seen, since 909 mules will carry 2000000 in packets whereas 1190 mules will be required for the amount in chargers.

The Percentage of weight of the charger or clip to the cartridges carried is as follows—

Austria	13.	7 clip, rimmed cartridge.
Germany	5.	1 charger, rimless.
Belgium	3.	5       "       "
Great Britain	9.	3 rimmed cartridge.
Holland	10.	4 clip, rimmed cartridge.
Italy	9.	6       "       "       "
Japan	7.	6 charger semi-rimless cartridges.
Russia	7.	2 charger, rimmed cartridges.
Switzerland	11.	6       "       "

Further disadvantages of clips are that the magazine cannot be replenished unless it is empty and a hole has to be cut in the magazine to allow the clip to fall out when all the rounds in the magazine are expended. It will be seen that chargers are lighter than clips, and rimless cartridges permit a lighter charger to be used.

Notwithstanding the above mentioned disadvantages no magazine rifle can be considered satisfactory from a military point of view unless the magazine is capable of being replenished by chargers or clips

**Cut-offs.** The following rifles are provided with cut-offs—

Danish—Krag-Jorgensen.

British—Short Magazine Lee-Enfield.

Canadian—Ross.

French—Leble.

U. S. A.—Spring-field.

Turkish—Mauser.

The object of a cut-off is to enable cartridges to be carried in the magazine with the rifle unloaded or that the rifle may be used as a single loader. The presence of a cut-off is objectionable, as it complicates drill by introducing another "motion" before fire can be delivered through the magazine; if its second object is taken seriously a double system of Ammunition supply is necessary, namely "charger" or "clip" for loading the magazine and "loose" for single loading.

It will be easily understood that in the excitement of action, the motion of pulling out the cut-off might easily be forgotten, retarding the opening of fire. A Magazine Rifle is designed and intended to be fired with the cartridges fed through the magazine. A reliable safety catch and locking bolt is all that is required as a precaution for safety.

**Calibre.** As has been mentioned above the tendency of recent years has been to reduce the calibre of Military rifles.

The advantages of a Large Calibre are—

(1) The bore is easier to clean,

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- (2) A bullet with a large calibre has great shock and wounding power so long as it retains reasonable velocity.

**Disadvantages—**

- (1) Ammunition heavier and more bulky.
- (2) Impossibility of obtaining a flat trajectory and long range.

The desiderata of fire from a military point of view is that we should cover the front to the longest possible range with a sheaf of fire that does not rise more than 5 feet above the ground; with modern propellants and pointed bullets this range may be taken as approximately 800 yards. When it is remembered that the Martini Fixed Sight (i. e. the Sight which enabled the above conditions to be fulfilled) was 200 yards and the M. L. E. with its first propellant 500 yards, it is evident that a great advance has been made; it is only by adopting a slow burning powder, whose rate of ignition and combustion can be regulated, with a barrel of small calibre together with a pointed bullet that we can obtain the necessary muzzle velocity to produce a flat trajectory, without employing an impractically heavy barrel or straining the same.

**Magazine.** Nearly all rifles are fitted with a magazine fitted vertically in the body of the rifle. The cartridges being pressed downwards out of the charger (or the complete clip being inserted in the boltway and pressed home in the magazine) compressing the magazine spring, which, on recuperating, forces the cartridges up one by one into the boltway, this is the most satisfactory solution of magazine feed.

The Norwegian Krag-Jorgensen has a horizontal box with a hinged door on the right, the cartridges are fed in by hand and a spring situated behind a lever forces the cartridges to the left into the boltway on closing the hinged door, it is not capable of satisfactory loading from a charger.

The Maunlicher Shoenauer is fitted with a wheel with arms arranged around the axis, resembling the spokes of a wheel

without a rim, each of the cartridges is forced out of the charger into one of the intervals between the arms, at the same time winding up a spring, which on unwinding brings a cartridge successively opposite the boltway. The disadvantages of this system is that the stock of the rifle has to be made inconveniently bulky to house the magazine.

The Ross Rifle was fitted with a controllable platform, which could be depressed by a lever with a thumb piece situated under the backsight, enabling the cartridges, which were carried in packets to be "shovelled" into the magazine. The disadvantages of this system are that if the wood of the stock swells the lever sticks; moreover, the cartridges have, in practice, to be carefully inserted or there will be a jamb in feed.

**Pull-offs.** It is the custom at present to introduce a system of double pull-off, that is to say to divide the amount of pressure required to release the striker into the cycles. The first pull-off to be taken at the same time as the rough aim is being taken. The second pull-off to be taken when a correct aim has been obtained.

The theory is that, in a military arm in order to minimise accidents and indiscriminate firing, a fairly heavy pull-off is desirable, but, if this is taken in one comparatively heavy pull, dislocation of the aim or snatching and pulling to the right is apt to result.

All nations employ a double pull-off except Russia.

The following table shews the approximate weights of the 1st & 2nd pull in lbs.—

	1st	2nd
U. S. America	1½	3½
Austria	4	7
Germany	2	5
Japan	2½	6½
Norway	1½	7½
France	2½	6
Russia	5½	Nil
Spain	2	5½
Switzerland	2½	5
Great Britain	3½	5

## **Modern Rifles.**

**Bolts.** The necessity of employing a powerful propellant so as to obtain a very high muzzle velocity approximating to some 3000 feet per second imposes a severe strain on the bolt. When it is understood that modern bolts have to stand a proof pressure of some 26 tons to the square inch, it will be realized that the locking arrangements must be of a solid and effective nature. Most nations adopt forward locking lugs so that the strain is imparted at once to the main structure of the rifle. Great Britain adhered to locking lugs some half-way along the surface of the bolt as fitted to the Lee pattern action, but recent issues of British arms (1914 Pattern Rifle) and any future arm adopted will have forward locking lugs in addition to a third locking arrangement towards the rear end of the bolt.

The advantage of the latter arrangement is that undue cross strains are not imposed on the structure of the bolt.

The disadvantages of front locking lugs are that the seatings for the lugs are somewhat inaccessible and difficult to clean, and the bolt is generally longer, causing a possibility of the firer's face being injured when drawing back the bolt quickly without lowering the butt of the rifle from the shoulder.

**Bolt Heads.** In the weapons of most nations the bolt head is an integral portion of the bolt which is naturally a stronger component than a separate bolt and bolt head.

The advantages of separate bolt head are.—

- (1). The extractor being attached to the bolt head need not rotate on the bolt knob being turned up, consequently jams are not likely to occur through an uneven rimmed cartridge and a portion of the body need not be cut away to permit the extractor to rotate.
- (2). When the bolt head becomes unserviceable owing to wear, that component alone will require replacement and not the whole bolt.

Great Britain, Holland and Roumania have independent bolt heads. The Belgian, Danish, Italian, Japanese, Spanish, Turkish, United States and German rifles have no bolt heads.

France and Russia have bolt heads which rotate with the bolt.

If the tail of the extractor fits into a nib on a ring working independently in a cannelure cut in the bolt it need not rotate even if no separate bolt head is present. Examples of this form are found in the 1914 Pattern Rifle and the German Mauser.

**Straight Pull Actions.** Austria, Switzerland and Canada employ a straight pull action. The advantage claimed for a straight pull action is celerity in opening and closing the bolt, which can be attained with less manual skill and training.

Primary extraction is obtained by the bolt being in two portions, an outer and inner; feathers on one portion working in helical grooves cut in the other, convert a rectilinear into a rotary motion.

The disadvantages of straight pull actions are increased difficulty in extracting a tight cartridge owing to the lack of leverage obtained by turning up the knob of a rotary bolt action and complexity of design.

**Safety Catch & Locking Bolt.** A satisfactory safety catch is an essential part of a magazine rifle as it enables the rifle to be carried loaded with perfect safety. A sentry or a scout can at once open fire without the preliminary noise of opening and closing his bolt, thus avoiding detection.

A locking bolt is very desirable to prevent the bolt being unintentionally opened and perhaps damaged, whether the main-spring is released or compressed.

Both of these adjuncts should be capable of being operated by the fingers of the right hand without removing the hand from the small of the butt, so that there shall be as short a delay and as little movement as possible prior to opening fire.

**Facility of Stripping.** Many nations claim it as an advantage that the bolts and other portions of the rifle can be stripped without tools. This is a questionable advantage, as, certainly as far as the British Service is concerned, it would tend to the loss of components.

The Russian and Japanese bolts are typical instances of bolts that can be stripped and assembled without any tools. The first named is very roughly machined and finished, the latter is beautifully made.

**Sights.** Refinements such as windgauges and fine adjustments are now considered unnecessary and harmful in a Military rifle; they introduce into training elements which would be impractical in war. They are complicated and belong to the " Match rifle " class of weapon. For snipers, that is to say, highly trained specialists, telescopic sights are provided.

An aperture sight is considered an advantage in a Military rifle provided the aperture is not too small and the " frame " of the aperture is not too big, if the aperture is too small and the frame too massive, delay will ensue in picking up the target owing to the small field of view in the aperture and the obliteration of the ground by the frame. If an aperture sight is fitted to a Military rifle it should not be more than about four inches from the eye, otherwise the whole essence of aiming with an aperture sight, that is to say, that the foresight shall be seen centrally through the aperture (the latter being practically ignored) will be lost. The aperture on the American Springfield rifle being over 12 inches, from the eye is unsatisfactory from a Military point of view.

A combination of a U backsight and blade foresight is now considered more suitable than a V or Bridge backsight with barleycorn ( $\Delta$ ) foresight since the former does not blur in bad lights or in the hands of men past the age of 36 or so, who may suffer from presbyopia.

If a blade foresight and U backsight are employed, the width of the blade and the light spaces seen on each side of the blade through the U should be equal. Some form of " battle " or " fixed " sight is generally arranged for; this sight which gives a certain elevation according to the flatness of the trajectory and the culminating point desired, can be instantly set. The usual procedure is a secondary sight fixed at right angles to the main sight stem, so that, when the backsight is lowered, the

battle sight is automatically raised. If it is required that the battle sight should be arranged so that the bullets would not rise in their flight more than five feet from the ground if aim was taken at the foot of the object, then in the Martini Henry we should arrange the sight to give 200 yards, the M. L. E., with Mark VI Ammunition 550 yards, the S. M. L. E. with Mark VII, ammunition 650 yards elevation. The great advantage of a flat trajectory will be at once seen.

**Rim and Rimless Cartridges.** A cartridge is said to be rimmed when the rear end of the large cone ends in a rim, the object of which is two fold, first to prevent the cartridge being pushed too far into the barrel and secondly to enable the extractor to get a purchase on the cartridge.

Rimless cartridges have a cannelure cut near the base of the large cone for the engagement of the tooth of the extractor; the cartridge is prevented from going too far into the barrel by having a pronounced shoulder.

The advantages of rimless cartridges are—

(1) They pack closer.

(2) Overriding is impossible, that is to say there being no rim to the cartridge it cannot pick up the next cartridge in the magazine when loading.

(3) They enable a smaller and lighter charger to be used as the sides of the charger are turned over and fit into the cannelure cut in the cartridge case (See above under "chargers and clips") With a rimmed cartridge the charger has to be produced along the sides of the cartridge to hold it in position.

*Rimmed.*

Austria, Denmark.

Bulgaria, Great Britain.

France, Canada.

Russia.

*Rimless cartridges*

Belgium, Turkey.

Germany, U. S. A.

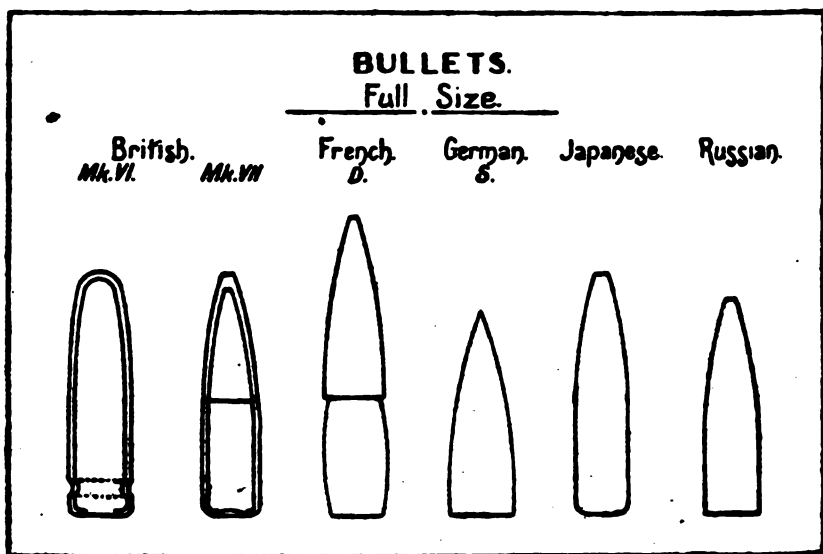
Greece, Switzerland.

Italy, Spain.

Japan uses a semi-rimless cartridge.



A.



**Bullets.** The rifles of the past, with their large calibre employed hard lead for the composition of their bullets. This was satisfactory in view of the comparatively speaking low velocity (1000-1500 fs.), low temperature evolved by the explosion of the charge and short range.

With the introduction of smokeless powders and small calibre bullets attaining a muzzle velocity of some 2000-2900 fs. it became necessary to cover the lead of the bullet with some hard substance. Modern bullets are therefore covered with a skin or envelope of some harder metal such as cupro-nickel, steel or copper zinc; such envelope under the Geneva Convention must entirely cover the point.

Cupro-Nickel is expensive but gives the necessary stiffness to the bullet without unduly wearing away the lands of the rifle, it does not rust and is generally employed, but it deposits nickel fouling on the barrel causing loss of velocity and drop in impact

Steel rusts, and wears away the bore of the rifle.

Copper is somewhat soft and is affected by the atmosphere. The point of the bullet has a great effect on its range, accuracy and wounding power-

In the large calibre rifles the point of the bullet was a blunt ogival; as the calibre decreased, the length of the bullet increased and the ogival head became sharper until all modern bullets are pointed, so as to offer as little resistance to the air as possible.

A diagram A is appended shewing certain modern bullets (actual size).

It may be argued that these pointed bullets of small calibre travelling at a very high rate will not stop a resolute enemy but this is not the case. Owing to the centre of gravity being behind the centre of the shorter axis, the bullet gyrates during the first portion of the flight, like a top when it is first spun, it then steadies down until on the velocity again decreasing it again gyrates. The effect of this is that at close and extreme ranges the bullet on striking tends to set sideways. Further on penetrating vessels filled with liquid it sets up dynamic action. These results have been substantiated by shadowgraphs taken during the present

hostilities. The modern highly polished hard bullet is more humane than the old lead bullet as it does not normally mushroom : owing to its highly polished surface and the speed with which it is travelling it does not pick up and carry into the wound extraneous matter to the same extent as the blunter and softer bullet.

It will be seen that the French bullet has a taper base, the object of which is to lessen the vacuum that exists behind the bullet, retarding its flight. A certain amount of this vacuum is useful to steady the bullet like the feathers of an arrow.

The following table shews some of the weights of modern bullets in grains:—

		<i>Envelope</i>
Austria	244	Steel
Great Britain Mk. VI.	215	Cupro-Nickel
Mk. VII.	174	"
France	198	Nil-Bullet made of copper zinc.
Germany	155	Steel and cupro-nickel.
Japan	162	Copper
Russia	150	"
Turkey	154	Steel and cupro-nickel.
<b>Propellants.</b>		

The disadvantages of gunpowder as a propellant were :—

1. The sudden and violent evolution of a body of gas causing heavy stresses on the barrel of the rifle.
2. Evolution of a cloud of smoke and flash from the muzzle of the gun.
3. Pressure decreased during the progress of the bullet down the barrel.
4. Considerable fouling left in the bore.
5. Considerable danger in manufacture.

To counteract these, investigations were made into the possibilities of a smokeless powder whose rate of burning could be regulated by the size and shape of the cord, pellet or grain. These smokeless powder pellets etc., burn from the outside.

I am indebted for the following notes on the advantages and disadvantages of Nitroglycerine and Nitrocellulose powders to A. Marshall Esqr., Chemical Inspector, Nainital.

“There has been much controversy as to the relative merits of nitrocellulose and nitroglycerine powders, the former name being given to propellants which contain no nitro-glycerine and the latter to those which contain nitro-glycerine as well as nitro-cellulose. The advantages claimed for nitroglycerine powders are that they give more constant ballistics, do not give back-flash when fired, and have at least as good chemical stability as nitro-cellulose powders. Their great disadvantage is that the temperature of explosion is high and consequently the erosion of the bore of the gun is very severe.

In spite of the fact that erosion is specially troublesome in the larger guns, nitroglycerine powders are used by most of the Powers for their naval and other heavy guns, but France, Russia and the United States use nitrocellulose powders for all purposes. Nitrocellulose powders of large size give up the last portion of solvent very reluctantly in the drying process and it is necessary to leave several per cent, in the finished powder.

Moreover, if it were all removed, the powder would become too brittle and give high pressures. On keeping, however, some of the solvent may escape and upset the ballistics. Nitroglycerine powders give up their solvent comparatively easily and even the largest sizes can be dried down to about 1 per cent. The presence of the nitroglycerine prevents the material becoming brittle.

In cordite, the mineral jelly reduces the temperature of explosion considerably and the powder consequently does not erode the guns much more than some nitrocellulose powders do.

When large guns are fired the combustible powder gases are liable to catch light at the muzzle and burn down the bore, and when the breech is opened this flame may emerge, especially if the gun be pointing to windward. This danger is greater with nitrocellulose powders because the gases they form on explosion are more inflammable than those from nitroglycerine powders. There have been a number of accidents from this cause in the French and American Services.

The powders used by the various Nations in their small arm ammunition are as follows:—

(a) *Nitro-cellulose.*

- Austria
- Denmark
- France
- Germany
- Greece
- Holland
- Japan
- Russia
- Switzerland
- Turkey
- U. S. A.

(b) *Nitro-glycerine.*

- Great Britain (Cordite).
- Canada.

(c) *Nitro-glycerine and cellulose.*

Belgium

Portugal.

**Bayonets.** The older patterns of bayonets were triangular in shape fitting directly on to the muzzle of the rifle. Sword-bayonets being issued to serjeants.

Owing to the bayonet fitting on to the muzzle of the rifle, it was necessary to arrange for the blade to be away from the barrel so as not to interfere with the passage of the bullet on issue, in consequence of this a triangular shaped bayonet was the most convenient form. It is customary now, however, to fit the bayonet on to the nosecap so as to place as little strain as possible on the barrel, to which it is attached by a ring. This arrangement enables a dagger shaped bayonet to be used which is capable of being used as a dagger, or for cutting up rations or chopping wood provided its temper has not been spoilt by improper usage as a toasting fork or poker.

The great desiderata of a bayonet is that it should not bring the balance of the rifle too far forward preventing a quick recovery after delivering the point. The effect of the bayonet on ballistics is to draw the bullet down-wards as it tends to deaden the vibrations of the rifle. The same effect is produced by hanging a dead weight on the muzzle of a rifle when it is fired. Further

if a triangular bayonet is fixed on the right of a rifle, it will throw the bullet to the left the possible reason being that the blast of gas that issues in front of a bullet and immediately behind it strikes the surface of the bayonet blade and rebounding deflects the bullet to the opposite side.

The following are particulars of British bayonets :—

	<i>Length.</i>	<i>Weight</i>
Snider (Sword)	17½-inches.	15 ozs.
Martini Henry (Triangular)	22 „	12 „
M. L. E. (Sword, double edged)	12 „	15½ „
S. M. L. E. (1907 pattern)		
Sword Single edge.	17 „	16 „
<i>Foreign Bayonets.</i>		
Austrian, (Sword)	9 „	10 „
German (Sword)	20 „	14 „
French (Triangular)	20 „	10 „
Russian (Quadrangular)	18 „	12 „
Turkish (Sword)	18 „	19 „

**Forecast as to future developments.**

Any rifle adopted by nations will in all probability be about 3 ft. 9 inches long with a calibre of about .280 inches. It will be generally admitted that the short Magazine Lee Enfield Rifle has proved satisfactory during current hostilities. Its decreased length, about which there was such a controversy on its introduction, has proved an advantage in confined spaces, whilst its ungainly sight protector and noscap has proved a satisfactory protection to the foresight and support for the bayonet. The clogging of the action through mud was practically unpreventable by any permanent metal attachments to the rifle. A removable canvas breech cover appears to meet the case. The terrible mud in the trenches in Flanders in the winter of 1914-1915 was abnormal but provision will in all probability be made in any new pattern of arm to protect the action from mud and sand. Every endeavour will be made to obtain a combination of barrel, bullet and powder charge which will give a "battle sight" range of 800

**Modern Rifles.**

to 1000 yards with a "culminating point" not exceeding 5 feet. In order to prevent the heat engendered by nitro-glycerine powders, some form of nitro-cellulose powder will in all probability be adopted. The sights will be of a simple nature on the aperture principle. Long range fire will not be provided, for such fire for barrage purposes etc., is best delivered by Machine Rifles, in which case the elevation and direction can be more easily controlled and, owing to the concentration of the fire, observation of its effect more easily obtained.

The stock will be in one piece and the magazine will be undetachable. Its weight will be about  $8\frac{1}{2}$  lbs.

Machine rifles will be freely used in the firing line and it is practically certain that before many years a self-loading Automatic Rifle will be placed in the hands of specially selected soldiers.

Appended is a table, B. giving the chief characteristics of modern rifles. In studying such a table it must be remembered that progress is always proceeding and what is true to-day may be out of date to-morrow. Some of the figures in the table therefore may not be absolutely correct at the present time.

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TABLE NO. 1.

Country.	Austria.	Belgium	Great Britain.	Great Britain.	Canada.	France.	Germany.	Italy.	Russia.	Turkey.
Name of Rifle.	Mannlicher.	Mausser.	Short Magazine Lee-Enfield.	1914 Pattern.	Ross.	Lebel.	Mausser.	Mannlicher Carcano.	" 3 Line " Nagant.	Mausser.
Magazine System.	Fixed Vertical Box.	Detachable Vertical Box.	Detachable Vertical Box.	Fixed Vertical Box.	Fixed Vertical Box.	Tube under Barrel.	Fixed Vertical Box.	Fixed Vertical Box.	Fixed Vertical Box.	Fixed Vertical Box.
No. of Cartridge in Magazines	5	5	10	5	5	8	5	6	5	5
Charger or Clip	Clip	Charger	Charger	Charger	Loaded by hand on to a controllable Platform.	Loaded by hand.	Charger.	Clip	Charger	Charger
Cut off	No.	No.	Yes.	No.	Yes.	Yes.	No.	No.	No.	Yes.
Safety Bolt	Yes.	Yes.	Yes.	Yes.	Yes.	No.	Yes.	Yes.	Yes.	Yes.
Weight of Rifles.	8 lbs. 5½ oz.	8 lbs. 10½ oz.	8 lbs. 10½ oz.	9 lbs. 6 oz.	9 lbs. 0 oz.	9 lbs. 3½ oz.	9 lbs. 0 oz.	8 lbs. 6½ oz.	8 lbs. 1½ oz.	9 lbs. 1 oz.
" " Bayonet	8 lbs. 13½ oz.	9 " 10½ "	9 " 10½ "	10 " 8 "	10 " 0 "	10 " 1½ "	9 " 14 "	9 " 11½ "	10 " 8 "	10 " 8 "
Length of Rifle without Bayonet	4 ft. 2 in.	3 ft. 8½ in.	3 ft. 8½ in.	3 ft. 10½ in.	4 ft. 4 in.	4 ft. 3 in.	4 ft. 1½ in.	4 ft. 2½ in.	4 ft. 4 in.	4 ft. 4 in.
" " with	4 " 11 "	5 " 2 "	5 " 2 "	5 " 3½ "	4 " 11 "	4 " 11 "	5 " 9½ "	5 " 2½ "	5 " 9 "	5 " 5½ "
Calibre in inches	4 " 11 "	5 " 303	5 " 303	5 " 303	4 " 300	4 " 315	5 " 311	5 " 256	5 " 9 "	5 " 301
No. of Groove & Twist in Calibre	4, 1 in 31	5, 1 in 33	5, 1 in 33	5, 1 in 33	4, 1 in 33	4, 1 in 30	4, 1 in 30	4, 1 in 32	4, 1 in 31	4, 1 in 33
Sighting System.	Tangent.	Radial.	Radial.	Tangent.	Tangent.	Tangent	Radial.	Tangent.	Tangent.	Tangent.
Highest sights	2132 yds.	2800 yds.	2800 yds.	2600 yds.	2200 yds.	2187 Yds.	2187 yds.	2187 yds.	2096 yds.	2187 yds.
Lowest	410 "	200 "	200 "	200 "	100 "	273 "	219 "	656 "	310 "	273 "
Cartridge.		Mk. VII, Mk. VI.								
Length.	3' 00	3' 05	3' 05	3' 05	3' 05	2' 95	3' 18	3' 00	3' 00	3' 07
Weight	455	381	381	381	415	415	369	331	347	415
Rimmed or Rimless	Rim.	Rim.	Rim.	Rim.	Rim.	Rim	Rimless.	Rimless.	Rim.	Rimless.
Bullet.										
Shape of Nose	Round.	Pointed.	Ogival.	Pointed.	Pointed.	Pointed.	Pointed.	Round.	Pointed	Round
material of Envelope	Steel	Cupro-Nickel.	Cupro-Nickel.	Cupro-Nickel.	Cupro-Nickel.	No Envelope	Steel & Cupro-Nickel.	Cupro-Nickel.	Copper.	Steel.
Weight grains	244	174	174	174	200	198	155	163	150	211
Charge.	Nitro-Cellulose.	Cordite.	Cordite.	Cordite.	Nitro-Cellulose.	Nitro-Cellulose.	Nitro-Cellulose.	Ballistite.	Nitro-Cellulose.	Nitro-Cellulose.
Muzzle Velocity, feet per second	2034	2400	2400	2400	2300	2290	2980	2400	2800	2070
Height of Trajectory 800 yds. ft.	14' 90	9' 00	9' 00	9' 00	23' 37	7' 60	5' 85	..	6' 22	..
sight Radius	26' 25"	19' 14	19' 14	31' 75	23' 37	25' 06	25' 45	..	23' 75	..



## **CONTACT PATROL WORK.**

LECTURE BY CAPTAIN R. H. RAYNER

COMMDT. SIGNAL SCHOOL, CHANGLA GALI.

Co-operation between the parts of an army is of itself no more important to-day than it was in the time of Waterloo, but it is rendered far more difficult by the conditions under which present day battles are waged.

It is fortunate therefore, that one of the many great developments in war organisation during the past few years has been the very great increase in the available means of inter-communication within an army. This development in a measure restores to the higher commander the more personal control over his forces in action, of which modern fighting conditions seemed likely at one time to deprive him.

In F. S. R. Part 1. Section 95 we read—"One of the most valuable means of obtaining information at the disposal of a commander is the Air Force." If this was written before the out-break of war how much more may it be recognised now after the demonstration we have had during recent campaigns of the capabilities of modern air-craft.

This demonstration is mainly of the use of the aeroplane for contact work in civilised warfare and is based on work of this nature, done by the R. A. F. on all fronts during the last three years. The principles hold good however and aeroplane contacts, modified to suit conditions, have been and undoubtedly will be of great use in operations against an uncivilised enemy.

You will have seen in Appendix B., S. S. 135 dated April 1918 and lately issued in this country, that co-operation between air-craft and infantry is divided into Contact Patrol and Counter-attack Patrol. The functions of these two contacts are entirely different and I shall deal with them separately.

### **Contact Patrol.**

The contact patrol observer has two duties to perform. His first is to keep the commander of the formation with which he is working, informed of the position and progress of his fight-

ing troops, and his second to carry urgent tactical messages from the fighting troops to the commander.

In the Balkan War of 1912 there were several cases of message carrying by aeroplane, and I believe a considerable amount of communication work of this nature was done by squadrons of the R. F. C. during the retreat and on the Aisne. The French actually originated the idea of contact working by aeroplane in attack, but the first carefully organised attempt on a large scale to keep the higher commander in touch with advancing infantry by means of aeroplanes, was made on the Somme in 1916. The work done by contact air-men in this battle was magnificent, and I remember, on the day in which we surprised the Bosch with our first tanks, officers of a certain squadron who had spent 2 to 3 hours night-flying over the the lines to drown the approach of the tanks to their assault positions, carrying on for several hours on contact work with only an hour's break for breakfast in between.

It was indeed unfortunate that lack of understanding between the Flying Corps and other arms made contact work on the Somme extremely difficult, and in many cases resulted in the work of our contact air-men being more or less futile. It can not be emphasised too strongly, that in any operation over any terrain the success or failure of contact patrol depends on the cordial relations and good understanding existing between the aeroplane and the troops in action.

This lesson having been learnt every effort was made during the winter of 1916-1917 to remedy this lack of understanding. Flying Corps officers visited infantry commanders, infantry officers visited squadrons, and lectures were given to the men while in rest camps. The good result of this liaison was shown by the excellent work done by contact aeroplanes at Arras and the subsequent battles of the 1917 campaign, and times without number during the last three years have our attacking troops been cheered and encouraged to greater efforts by the antics of some airman who has looped or spun over them, showing the real good feeling existing between the airmen and the foot slogger.

### **Contact Patrol Work.**

In Mesopotamia as late as the end of 1917 the Flying Corps infantry co-operation was very uncertain. Time and time again our airman imperilled their machines by flying very low over attacking infantry and no response what-so-ever was made to their call for flares. This weakness was continually pointed out in Corps communiques and one Corps commander attributed our failure to exploit properly a certain success to lack of information from the front line, which should have been forth-coming if infantry had co-operated faithfully with their contact aeroplane.

In Mesopotamia, as on the Somme, many commanders were afraid to give their position away to the enemy by flares, not realizing what little extra safety they gained and what chances they threw away by their in-action.

Contact Patrol work has always been particularly dangerous and productive of heavy casualties. In close fighting the enemy has had no time to turn machine gun fire on the contact aeroplane, but an atmosphere full of our own shells as well as those of the enemy can-not be considered safe and many are the pilots and observers who have met their death by a direct hit from a shell while on this precarious work. The plan was tried of defining a flying area between the gun and howitzer barrages but was naturally always very uncertain.

At Messines a contact aeroplane was reported blown into so many pieces that it fell like snow, and not few are the cases of pilots with legs or arms taken clean off by unburst shells, who have landed their machines in our lines without crashing, before pegging out.

To consider briefly other conditions necessary for successful contact patrol work. The first essential of contact patrol obtaining, and a proper feeling existing among the attacking troops, that the aeroplane, flying above them marked with the black streamer is their own particular friend and can do much for them, it only remains to see that care and patience is observed in assuring that the machine receives back the right information.

The most advanced troops *must* flash their discs or light their flares when called upon by the aeroplane to do so even though they are under the direct observation of the enemy. Failure to do this has more than once led to our own artillery barrage coming down most unpleasantly close to positions held by our own troops. No matter if the second or third line signal their position as long as the first line does.

The signallers at each headquarters must thoroughly understand the limitations of the aeroplane, must know in which position the observer is able to see them and have patience in continuing their signals until definitely acknowledged. The need for patience was more pronounced when the Ground Signalling Panel was used for communication from the ground to the aeroplane and the work of the signaller sending morse signals on the canvas panel was heavy and tiring. In the case of the Popham Panel the required signal is just put out and left out until acknowledged from the machine.

After many experiments flares and flashing discs have been decided upon as the best means by which infantry can denote their position. Early on, one battalion was sent into the trenches, armed with small brilliant colored parasols, and looking like a Japanese Garden party, and the plan was tried of having small circular mirrors on the forage cap. The German infantry denoted their position to the infantry aeroplane by means of lamps, or of "foot-and-a-half" white linen squares, with which they lined the parapet at frequent intervals. The method often used by the German infantry airman was to take a photo of the trench positions, on which these white squares showed up well. For message dropping our flying corps have always used the streamer bag which you will see to-day. On the Tigris operations watertight tins with streamers attached, were dropped into the river. The Bosch frequently used for this purpose a leather sachel to which was attached a small receptacle containing inflammable compound which ignited on striking the ground, making the sachel easily locatable. Markings adopted for our contact machines have been black streamers of cloth or 3 ply wood, attached

**Contact Patrol Work.**

to trailing edges of each or either lower plane or to the rudder. The German used a long wind vane coloured black, white and red. The machines in to-day's demonstration are marked by a blue streamer attached to the trailing edge of the starboard plane.

To assure good contact work in attack it has always been an invaluable practice for the observer doing the work carefully to go over the assault plans with the senior officers carrying them out. And in this connection panorama photos and sketches are exceedingly useful in helping him to determine the nature and height of objects and strong points seen from above.

During the recent years of fighting in France there have been very few opportunities up to the last great advance of co-operation between cavalry and the air force. No. 12 Squadron R. F. C. was for 3 years allotted to the Cavalry Corps but except during manoeuvres behind the lines there was practically no chance of making use of the small contact wireless stations supplied to the cavalry. I have not heard how much cavalry contact was done during the final advance, but it is to be imagined that invaluable co-operation was carried out. Co-operation between tanks and aeroplanes has always been sketchy as the tank is a particularly difficult unit to fit into the inter-communication scheme. The first time at the Tank Depot in Northern France that they tried to work wireless from the all metal tank, everything you touched or sat on gave you a shock. I believe they have tried lately to fit a mechanical Popham Panel on to the top of the tank between the two caterpillar hands, worked from inside by handles, and there is some idea of a somewhat similar device being fitted to armoured cars.

Cavalry officers report that in Mesopotamia much help was given to them by contact aeroplanes, particularly in dropping messages or maps informing detached units and patrols of their exact whereabouts.

During the Turkish attack on our positions round Katia, on the Eastern Egyptian Front in early 1916 two squadrons of our cavalry got lost in the midst of the Turkish columns. They

where shepherded safely home by an aeroplane, which continually dropped messages informing them of the enemy positions and giving them the compass bearing on which to march.

I must briefly touch on a form of contact co-operation, which has been much used during the last two years of war, that is between fighting troops and Kite Balloons.

The history of the "war balloon" dates back to 1794 when Coulette presented the first one to the French Government to be employed against the Austrians. It is interesting to note that the first Archibald gun constructed by Krupp's, was for use against the French War balloons, used for carrying despatches. As far as we know, no hit was registered by this gun. The first present day type of captive balloon was constructed by a German, Dr. Kriegsfeld in Augsburg about 20 years ago.

This form of inter-communication was extensively used by the Hun, from whom we more or less got the idea. A Kite balloon observer is not able on oblique observation exactly to locate the position of our forward troops, but these can always signal to him by Lucas Lamp, their location and needs. The arrangement employed in France was this. A direct line ran from the kite balloon basket to the army intelligence report centre of the battle in progress, whence the results of the observers own observation and tactical messages from the infantry were circulated to the Staff concerned in double quick time.

Kite balloon contact working was remarkably successful at Messines where a forward balloon was posted up, in front of Kemmel Hill, less than 2,000 yards from the fighting line.

#### COUNTER-ATTACK PATROL.

I will now turn to a short consideration of Counter-attack Patrol. Whereas the duty of the contact patrol observer is to keep the commander informed as to his own troops, that of the counter-attack patrol observer is to keep the commander informed of the doings of the enemy immediately opposing him. In addition to this he is able to warn the infantry of any hostile move or position affecting them, and to deal direct with the artillery in turning them on to any target, which is troubling the fighting troops.

**Contact Patrol Work.**

In the account of the Italian operations in Tripoli in 1913 we read of a flight Capt. Moizo who having located the advancing enemy succeeded in getting the Italian guns into action against them. This is probably the first instance of what is known as counter-attack patrol. Until late 1917 this work was included under the heading 'Contact Patrol.' As the counter-attack observer should be able to judge the importance of every enemy movement on his front, it is advisable that he should know the area well over which he is flying, for example any dead ground on which the enemy can safely assemble and any position which is naturally a strong point.

In counter-attack work, it is imperative that as well as being on cordial terms with the infantry, the observer has a really good understanding with the artillery. He should know personally the gunner officers with whom he has to work and there must be a mutual understanding of the difficulties of artillery and aeroplane work, and a mutual confidence in each other. Time and time again has the airman taken the trouble to photograph a target ably knocked out by one of batteries, and when the battery in question has received a copy of the photo and plumed its feathers, we may be assured that the relations between the battery and the squadron were of the best.

During the last three years the communication between counter attack aeroplane and artillery has been entirely wireless.

Just before the war an experiment was made at the Central Flying School Upavon, with aeroplane wireless, but no successful working is recorded until the late Col. Lewis carried out wireless co-operation with the artillery of the Second Corps during the latter part of the Aisne battle. Since then great progress has been made in aeroplane wireless equipment and its use has been general. The German, in spite of his scientific propensities, has always lagged behind us in air service wireless and it was not until March 1915, that a Taube fitted with wireless was observed working.

The communication from the counter attack aeroplane of warnings direct to the fighting troops is occasionally possible by

message dropping. For example, one case is recorded in Mesopotamia of a body of cavalry who were trotting unsuspectingly into a Turkish trap, being warned by a message, dropped from an aeroplane in time to withdraw under heavy shrapnel fire. The most usual method however has been (as you will observe in to-day's demonstration) for the counter attack machine to drive low over the position threatening our troops, firing a red Very light at the bottom of the dive before zuming back to previous height.

The job of the counter attack patrol observer has always been probably even more dangerous than that of his confrere doing contact work. He must be continually low over enemy positions and is the target of such unpleasant projectiles as flaming onions, in addition to innumerable bullets. Not only has his work had to be done in daylight, but much flying has had to be done at night before, during, and after an engagement.

For this purpose the machine has been fitted with a rack containing a dozen parachute flares, which are liberated in much the same way as bombs. The mere release of a parachute flare over enemy reliefs or working parties has a depressing effect on their moral, and if the flare shows up a landmark, such as a ruined farmhouse, which is familiar to the airman, he is able possibly to call the artillery on his wireless, and give them even more cause for depression.

This night patrol was more or less healthy from the airman's point of view until it was reported that the Bosch had copied a Lewis gun device with which our searchlight sections armed dumps against enemy night bombing patrols. The device was that of a light machine gun fitted to a portable trench searchlight, so as to send a stream of bullets along its beam.

Counter contact aeroplanes are said to have done much good work during the commencement of the great German offensive of last Spring. The enemy attacked under cover of a ground mist with such virulence that our S. O. S. barrage came down in some cases behind his assaulting infantry and this error was only corrected by contact aeroplanes sending back by wireless the shortened barrage signal.



## **Contact Patrol Work.**

Briefly to consider the value of contact work by aeroplanes in mountain warfare. They have already been considerably used in hill fighting in bringing in information of the enemies whereabouts, and in destroying his means of subsistence and livelihood by bombing his villages and his flocks. It is possible that in this type of warfare the tactical use of the aeroplane will be quite as valuable as the strategical.

It would seem that tactical work by aeroplanes would be extremely useful in the following cases:—

- (1) To maintain communication between detached columns.
- (2) To maintain communication between a column and headquarters.
- (3) To carry messages to and from an invested force.
- (4) To inform detached parties of their exact whereabouts and position of the nearest enemy.

It is obvious that an aeroplane contact would be invaluable to a commander who had divided his force into two or more columns and who was attempting to carry out one of those wide turning movements which the history of frontier warfare shows to be often the only means of bringing to battle and crushingly defeating the elusive enemy.

In this warfare a further tactical service which the aeroplane can render is the finding out of the nature and extent of the enemy's position, and the informing of the infantry and mountain artillery by message, Very light, and smoke bomb of his main line of resistance. During the Marri operations of last year some inter-communication work between columns was done by our machines, but the only other contact work which was carried out was the reconnoitering of valleys and hills and the signalling of "all clear" or otherwise by Very light to the advancing columns.

Aeroplanes may also be of use in guarding against surprise columns and large convoys moving through the hills, very much in the same way as seaplanes guarded our convoys in the dangerous waters of the channel, against submarine attack. Although there are no Archies an aeroplane reconnaissance in frontier warfare is no joy ride. You may have read in the English trans-

lation of the book on war flying by Richtofen, the German airman, of how he nearly crashed while flying over a burning Russian town where he met the most colossal bumps. In the same way very dangerous 'bumps' and airpockets are encountered flying low over the heated rocky nullas of the frontier. Engine trouble means at the best a bad crash.

Then there is always the chance of falling into the hands of an enemy, who gives no quarter, and the fact of one of our machines on the Mohmand show coming home with a large lump of lead through its bottom petrol tank shows that even the bullets of the hillman must be taken into account.

The main difficulty encountered in the use of aeroplanes in mountain warfare is naturally the lack of ground fit for landing, and much time has to be lost in flying from and back to the nearest surveyed landing ground, kept supplied with the necessary stores and equipment. In this connection I have been given the following information by an officer of the Royal Air Force who was commanding one of the two flights which took part in operations in the Marri country. As the Quetta Field Force and the brigade from Dera Ghazi Khan advanced from their respective directions they constructed landing grounds in convenient places by which means airmen were able to land and make direct reports to the officer commanding concerned. He also informed me that a far sighted condition included in the Marri peace terms, was that all aerodromes constructed in their country by the field forces, were to be kept clear of crops and in good condition by the Marris themselves.

Another difficulty at present limiting the use of aeroplanes on the frontier is the fact that long flights are impossible during the day in the hot weather as the air cooled engines quickly become overheated.

Although aeroplanes have done much useful work in the mountain warfare operations in which they have already taken part, it must not be forgotten that the type of machine used during these shows, has been one which was in use before the war and which was obsolete in France in 1916. Much more can

be expected when more recent types of aircraft (with possibly water-cooled engines) are available for this purpose.

I shall not touch on the Kite Balloon as it is probable that this device would be too clumsy and vulnerable for mountain warfare use. It is probable that stereoscopic aerial photos would be invaluable to Commanders on the frontier to help them to determine the nature of the ground held by the enemy (e.g. the height of hills and the depth of nullas). Much useful photographic work may therefore be done in future operations.

It is just as essential in mountain warfare as in civilised warfare that the principles of Air Service Co-operation are thoroughly understood by all. In the operations of the summer of 1917 against Manu the value of the work of aeroplanes operating from Tank was minimised by an imperfect understanding between the ground forces and the aeroplane. For example, messages containing valuable information which were dropped on the heads of columns marching up the Shahur Valley, were sent right back to headquarters before being opened where they arrived too late to be of much value.

Finally, therefore, I should like to suggest that every commanding officer bears in mind, that it is more than probable, with the number of pilots and machines, which we have now at our disposal, that aeroplanes will be used in every operation of the future. It is therefore needful that the unit under his command is trained to co-operate with aeroplanes, and in this connection the following points might be remembered:—

1. That senior officers should know the limitations of the aeroplane; that is, the weight it can carry, the distance it can fly and to what extent wind effects this distance, and the amount of detail the airman can observe from various heights. If these particulars are generally known, commanders will know how much to expect from the aeroplane and will not ask for impossibilities.
2. That all officers are well acquainted with training pamphlet G. S. T. 31 issued lately by Army H.Q. and

**Jubbulpore,**



Maps print



containing practice instructions for signalling from cavalry, infantry, and armoured cars, to aeroplanes, and are able to carry these instructions out.

3. That signallers of British and Indian regiments are taught how to set out and use the Popham Panel and ground slips with speed and accuracy, are well acquainted with the signals that may be sent on the Aeroplane's Klaxon Horn, and understand the system of signalling used.
  4. That all ranks of every unit are lectured on the object and value of aeroplane contact and are taught how to work with aeroplanes. Every opportunity should be taken of letting them take part in schemes in which aeroplanes are co-operating. With Indian troops it would even be valuable to borrow a Klaxon Horn off the nearest ford car and accustom them to the succession of A's with which the aeroplane calls for flares.
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**BIOGRAPHICAL SKETCHES.**  
**By Brigadier-General R. G. Burton.**  
**No. IX James Outram.**

Some figures stand out vividly on the page of history and appear almost like living men, whilst others, although their achievements may be no less eminent, seem more like pale phantoms of the Past, seen as in a glass darkly, obscured by the mists of time. But it is not always those belonging to a more remote epoch whose deeds appear like the tracings on a palimpsest of the Past. Certainly Time in his flight casts a glamour over the records of history. While Alexander, Caesar, and even Napoleon, perhaps from the very nature of their personalities, appear like mythical figures, the stern and forbidding features of Clive stand out clearly on the page of Indian History ; to this day one can see in imagination the lion-hearted Nicholson on the Ridge at Delhi

James Outram belongs to a heroic age ; his noble and unselfish character, the fearless independence of a soul which asked " honour and not fame, to be upright, not to be successful", invest him with a halo of romance and offer a strong contrast to the self-seeking spirit of more recent times. The qualities that lead to success in life are not always by any means the most admirable, nor are successful men, however great the measure of their success, themselves great in consequence. But selfish fame is evanescent, unless it be of genius as great as that of Napoleon, or of infamy like that of Judas. But no stain tarnishes the shining armour of James Outram. He was perhaps, great more by character than achievement.

In the earlier years of our rule in India, military officers were employed in very varied capacities. Thus an officer might be in the Political Department at one period of his service and might be moved from such employment to command troops and even armies in the field. Many soldier-politicals have rendered splendid service and attained well-merited eminence in both a civil and a military capacity. In early years there was Sir Thomas Munro, who commanded forces in the field during the Mahratta War of 1817-18, and

died when Governor of Madras. His contemporary Sir John Malcolm held many important political appointments; in the Mahratta War he combined soldiering with diplomacy, and eventually became Governor of Bombay. There was Sir Henry Lawrence, killed during the siege of Lucknow, who was not only Chief Commissioner of Oudh but was in command of the heroic garrison, and had a few years earlier been virtual ruler of the Punjab after the annexation of that Province. Today I have chosen as my subject a soldier-civilian whose name was at one time a household word not only in India but throughout the British Empire, and who in character and in some measure in achievement ranks among the highest in the galaxy of talented soldiers and administrators who adorn the records of our history. James Outram came to India in 1819 at the age of sixteen, and was posted to a Bombay Infantry Regiment. He was not many years at regimental duty where his service was uneventful, but he occupied his leisure with field sports, including pig-sticking, in which he appears to have excelled, for in the years 1823-24 at Rajkot the records show that he got 75 out of 123 first spears. He was present in the year latter year at the siege of Kittur, where it is recorded that a sepoy named Fazil Beg shot or bayoneted ten men, and his services at the capture of Maler the same year were specially noticed by the Commander-in-Chief.

Outram did not long remain at regimental duty. In 1824 he was appointed to raise and command a Bhil Corps in Khandesh. The Province of Khandesh had been an independent territory in the fifteenth century, but was later absorbed in the Mugal Empire, and on the decline and disintegration of the dominions of the Delhi Emperors it formed a part of the predatory Mahratta States. In the war of 1817-18 the power of the Peshwa was broken and Khandesh fell to the English by right of conquest. The Province, contained in the basin of the Tapti river, was rich and populous in the palmy days of the Mugal Empire. But its devastation by bands of plunderers during the period of anarchy that ensued on the rise of the Mahrattas under Sivaji had caused a large portion of it to lapse into a state of wilderness and forest. Marauding Bhils, an aboriginal race which had been driven in



the course of ages into the surrounding hills, took up their abode in the jungles of Khandesh and plundered the inhabitants. From such excursions they returned to the safe retreat of those fastnesses of forest and mountain which they shared with tigers and other savage beasts. The province had so far lapsed into a state of nature and had been overrun by the jungle and its savage inhabitants that the returns for the first year after its annexation—1818—show a total of 30,000 cattle destroyed by tigers.

The decline of Khandesh was assisted by famine and misrule. Under the aegis of the Mahratta Government of Poona a policy of cruel repression had characterised the treatment of the Bhils. They were hunted down and slaughtered but never subdued, while the Mahratta lack of faith had rendered them in general unamenable to any other policy than that of extermination. In 1818 "murder and rapine stalked unrestrainedly and openly through the land. Fifty notorious leaders infested this once flourishing 'garden of the West' and their every command was implicitly obeyed by upwards of five thousand, ruthless followers, whose sole occupation was pillage and robbery, whose delight alone consisted in the murderous foray, and whose subsistence depended entirely on the fruits of their unlawful spoil. Smarting also under the repeatedly broken pledges of the former native Government, and rendered savage by the wholesale slaughter of their families and relations, the Bhils were more than usually suspicious of a new government of foreigners, and less than ever inclined to submit to the bonds of order and restraint." For seven years measures of both conciliation and repression were tried. Attempts were made to enlist the Bhils in Government service in local corps and police, but it was not until 1825 that these measures were attended with any appreciable success. In that year the Bhil Agency was established. James Outram was appointed to the charge of a district of Khandesh, and was entrusted with the duty of raising a Bhil Light Infantry Corps under native commissioned and non-commissioned officers of regular regiments.

Outram's first measure was to head an expedition against the marauding Bhils into the Ajanta Hills, taking with him a

detachment of his regiment, the 23rd Bombay Infantry. He followed the Bhils into their mountain fastnesses where they had hitherto considered themselves immune from pursuit. Their most remote haunts were penetrated and occupied, and they and their families placed in the power of the Government. Outram then began the formation of his Bhil Corps through the medium of the prisoners taken during this expedition. Some were released to bring in the relatives of the rest, on the pledge that they should all be set at liberty. Outram recorded his measures as follows :—" I thus effected an intercourse with some of the leading Naiks, went alone with them into their jungles, gained their hearts by copious libations of brandy, and their confidence by living unguarded among them, until at last I persuaded five of the most adventurous to risk their fortunes with me, which small beginning I considered ensured ultimate success."

By such measures, by listening to complaints, redressing grievances, and by obtaining remission for those who had been proscribed but sought his intercession, he inspired the Bhils with a feeling of security and confidence, induced them to enlist in his corps, and by this means in the course of the ten years he was engaged in this work he reduced the country and its wild inhabitants to order. His influence was largely due to his habit of hunting down the tigers which infested the country. In this pursuit he was assisted by the Bhils, whose respect and affection he earned by his skill and fearlessness. Indeed, no other qualities gain the respect and ensure the remembrance of the inhabitants of the country in so great a measure as those of the "Mighty Hunter before the Lord". It is to be seen in the name of Nausherwan, and in the traditions which endure so long among the people of the forest regions of India. In many a remote fastness, far from the haunts of civilized man, where no sounds save those of Nature strike upon the ear and where the wild beasts wander in peace over almost untrodden solitudes that are seldom visited except by the wandering sportsman, the names of famous hunters who have long since passed to the Happy Hunting Grounds may be heard at night round the camp-fire on

the lips of the jungle-men. Among the rural population which constitutes the vastly greater portion of the people of India the names of great soldiers and statesmen, even if they are ever known, are soon forgotten. But the names, the personality, and the deeds of famous hunters, often related in the countryside with exaggeration, are remembered for generations.

Outram remained ten years in Khandesh; during this period he conducted several expeditions against marauders, and proved the efficiency for this work of the corps he had raised. He was then employed on a special mission to Gujerat and Mahi Kanta, to reduce refractory chiefs to order. This mission, which was carried out under the auspices of the Bombay Government, involved some fighting and the exercise of considerable diplomacy; it was brought to a successful conclusion. In the course of his duties Outram on more than one occasion found his views to be in conflict with those of the Government he served, and his fearless advocacy of the measures he considered right proved his whole-hearted devotion to duty and the complete absence of that subservient spirit, which leads many men to endorse the views of their superiors, regardless of higher interests than those of self-advancement.

On the despatch of an army to Afghanistan in 1838, Outram, desiring more active employment, joined the Staff of Sir John Keane, Commander-in-Chief of the Bombay Army, as Extra A. D. C., and proceeded to Kandahar after carrying out some useful work in collecting transport and negotiating with the Amirs of Sind in order to facilitate the passage of the army. In Afghanistan he was present at the siege and capture of Ghazni where he distinguished himself on several occasions by his intrepidity and military skill. He was given command of a party sent in pursuit of Dost Muhammad Khan, whom he followed as far as Bamian, from whence the Afghan fled across the frontier. After his return to Kabul from this service he was employed in a political capacity and in the suppression of rebel Ghilzais and other tribes between Kabul and Kandahar. At the subsequent taking of Kalat he was specially mentioned for zeal and ability, and was sent with

despatches from that place to the Government of Bombay. On this occasion he rode from Kalat to Karachi in disguise, an adventurous journey in those days. For his services Outram was promoted to a brevet majority.

Some of the views expressed in his correspondence are interesting and instructive, showing that he had in general grasped the correct principles of both war and policy. Thus he writes after the disaster of the retreat from Kabul:— "Attack the enemy on every occasion and disabuse the opinion now prevailing that the Afghans are a match for us in the field." Although he was not of the "Forward School," and considered that the Indus was the proper strategical frontier of India, he favoured in strongest terms the retention of Kandahar, temporarily, "in order to create such an impression of our power in the minds of the people of this part of Afghanistan, while we remain in the country, as shall efface the memory of the disasters of Kabul, and lead the inhabitants to respect our national character." This involves a principle the neglect of which has so often led to disaster, not only in Asia where, in view of the vital importance of prestige, it is especially applicable, but in all countries. The withdrawal from the Transvaal by Gladstone's Government after the defeat of Majuba Hill may be instanced as a terrible example. It was the cause of war twenty years later, not that a policy of withdrawal was necessarily wrong, but that it took place after a humiliating defeat, which, in accordance with fundamental political and military principles, should have been first retrieved. To make terms with a victorious enemy is fatal to honour to prestige, and to future peace. Early in 1840 Outram took up the appointment of political agent in Lower Sind where his life was uneventful, and in the following year Upper Sind was added to his charge.

During his three years in Sind, Outram was concerned in stirring events. The Government of Sind was in the hands of the Amirs, who resented the passage through their territory of the English Army on the way to Afghanistan, but Outram, who had the faculty of dominating orientals due to his firm and straightforward character, acquired their confidence and by his tact and

fair dealing kept them friendly during the years of trouble in Afghanistan, even through the disaster of the retreat from Kabul at the end of 1841. In January 1843 he joined Sir Charles Napier who had taken command in Sind to enforce a treaty on the Amirs. Outram, as Commissioner, did his best to secure peace, but the policy of Sir Charles Napier, of which the Commissioner did not approve, led to the outbreak of hostilities. The Amirs attacked the English Residency at Hyderabad, where Outram held out for a time, but he was eventually obliged to retreat and take refuge with his escort on a steamer on the Indus. The battle of Miani, at which he was not present, was fought two days later, on the 17th. February 1843, and the province of Sind was annexed to the Empire. After these events Outram proceeded to England with Napier's despatches. He was for many years engaged in an acrimonious controversy with regard to the Sind policy, of which his disapproval was marked by his refusal to accept the £2000 allotted to him as prize money for his share in the operations, an incident very characteristic of the man who subsequently relinquished the command to Havelock in the advance to the relief of Lucknow, and who acquired the appellation of "the Bayard of India." For some time after the conquest of Sind Outram's career was comparatively uneventful. He was in 1845 transferred to the Southern Mahratta country, and was subsequently appointed Resident at Satara, the capital of the descendants of Sivaji, the founder of the Mahratta Empire. It is remarkable that, although a brevet-colonel, he had now at 26 years service only attained the rank of captain in the Bombay Army. After two years at Satara he was appointed Resident at Baroda, and later went to Oudh in the same capacity. In the latter State he carried out Lord Dalhousie's policy of annexation, often cited as one of the causes of the mutiny of the Bengal Army, but in 1856 he was obliged to go home for reasons of health. He had in the meantime been made a K. C. B. in recognition of his eminent and varied services.

Sir James Outram was now on the threshold of events which placed the seal on his life of strenuous service. While he was in England war broke out with Persia and he was offered chief

command of the expeditionary force which had already gone to that country from Bombay, and at the same time was given full political power. His previous experience and achievements well fitted him for the exercise of both offices.

The details of the Persian expedition do not present any features of special interest. The Persians proved contemptible enemies. A force of some 6000 was defeated at Khush-ab, near Bushahr, on the 3rd February 1857, an affair characterised by a fine cavalry charge in which the Poona Horse and 3rd Bombay Light Cavalry charged a square and killed nearly a whole regiment, the former corps capturing a famous standard. An expedition and successful attack on Muhamra were undertaken six weeks later, followed by an advance on Ahwaz, after which terms of peace were happily arranged happily, because already a dark cloud was arising in India presaging the advent of events which threatened the very foundations of English power in that country.

Unlike many old and experienced officers of the army, Outram was not surprised by the outbreak of the mutiny of the Bengal Army. Although the storm did not burst at Meerut until the 11th May, significant incidents occurred at Barrackpore and elsewhere some time before that date. Hearing of some of these episodes, he wrote to Lord Elphinstone, Governor of Bombay, on the 27th. April 1857:—

“ The mutinous spirit so extensively displayed by the Bengal Army is a very serious matter, and is the consequence of the faulty system of its organisation, so different from that of Bombay, where such insubordination is scarcely possible for with us the intermediate tie between the European officers and the men—the native officers—is a loyal efficient body, selected for their superior ability, and gratefully attached to their officers in consequence. Their superior ability naturally exercises a wholesome influence over the men, among whom no mutinous spirit could be engendered without their knowledge, and the exertion of their influence to counteract it; whereas, the seniority system of the Bengal Army supplies neither able nor influential

- native officers—old imbeciles merely, possessing no control over the men, and owing no gratitude to their officers, or the Government, for a position which is merely the result of seniority in the service.....As at present constituted the Bengal Army can never be depended on." No doubt there was truth in these words, but the causes of mutiny were deeper and far more complex, involving that annexation of Oudh in which Outram himself was reluctantly concerned, and many other factors.

On the outbreak of the mutiny Outram was at once recalled to India. There was no longer occasion for him to remain in Persia, and at such a crisis the Governor-General, Lord Canning, wished to have all men of outstanding character and proved worth in the country. Outram was appointed on paper Agent in Rajputana. It was proposed to give him command of the Central India Field Force, but soon after his arrival in Bombay he was called to Calcutta, where he arrived on the 27th July, to find himself appointed Chief Commissioner of Oudh, and to command all the troops between Calcutta and Cawnpore, the most advanced station occupied by relieving troops which were attempting to advance on Lucknow.

Sir James Outram's appointment was announced on the 5th August. The situation was critical. Lucknow was closely besieged, and Havelock, who had advanced from Cawnpore had been obliged to retreat owing to the weakness of his force. In other parts of India the position was precarious. Delhi was still in the hands of the mutineers; Central India from the Jumna to the Narbada was seething with revolt; Behar was endangered, although relieved by the successful defence of Arrah, and saved by Vincent Eyre by his relief of that place on the 3rd August, of which information had not yet reached Calcutta. The Gwalior Contingent had mutinied and stood ready to advance on either Agra or Cawnpore as opportunity offered. And for the relief of Lucknow Havelock had a force of only a thousand men.

Such was the situation as it presented itself to Outram, who had available as reinforcements the 5th and 90th Foot and Eyre's bullock battery, and a few small detachments which could be

collected from the line of communications where they had been dropped by Havelock and were, in Colin Campbell's words "torn from the reluctant grasp of the civil authorities". These latter were, perhaps naturally from regard for the safety of their districts, prone to betray timidity. No doubt, civil authorities are apt to forget that they have not the Military knowledge necessary to enable them to judge Military necessities. It should be recognised as an axiom that it is the duty of the civil authority to supply information in civil disturbances, and of the Military authority to determine the amount of armed force to meet the situation disclosed. The Military authority is thus responsible for having sufficient force available, and to allow the civil to dictate the amount of force, its constitution or numerical strength, is in direct contravention of all principles. In some cases during this campaign columns were diverted from their original purpose at the instance and at the requisition of the civil authority. These latter sometime take credit where measures, due to Military dispositions are successful, and are prone to blame the Military authority in the event of disaster or failure, as has been frequently exemplified in peace and war.

Outram embarked on a river steamer for Allahabad on the night of the 6th August, accompanied by his Staff, which included Colonel Robert Napier, afterwards Lord Napier of Magdala. On the 10th he reached Dinapore, and found that the 90th Regiment, which had gone up the river a few days before, had been recalled at the instance of the panic-stricken civil authorities. He was too late to prevent the return of the regiment, but ordered it on together with a detachment which had been kept back, and on the 28th he reached Benares, where he heard that Havelock's force was reduced to 700 men, exclusive of detachments. It was now that he decided to allow Havelock to remain in command of the relief force and to proceed himself in his civil capacity as Chief Commissioner and as a military volunteer. This decision was communicated to Havelock in the following terms:—"I shall join you with reinforcements, but to you shall be left the glory of relieving Lucknow, for which you have already so nobly struggled.



I shall accompany you in my civil capacity as Commissioner, placing my military service at your disposal, should you please to make use of me, serving under you as a volunteer". This decision was communicated to and approved by the Governor-General and the Commander-in-Chief. Outram reached Allahabad on the 1st September, and was there joined by Major Eyre's battery and 5th Fusiliers and 90th Foot. From here he despatched a force under Eyre to disperse a party of rebels, and at dusk on the 15th September he arrived at Cawnpore, where he was welcomed by Havelock.

The day after his arrival he issued the historic Order—

"The important duty of relieving the garrison of Lucknow had been first entrusted to Major-General Havelock, C. B., and Major-General Outram feels that it is due to this distinguished officer, and the strenuous and noble exertions he has already made to effect that object, that to him should accrue the honour of the achievement.

Major-General Outram is confident that the great end for which General Havelock and his brave troops have so long and so gloriously fought will now, under the blessing of Providence, be accomplished.

The Major-General, therefore, in gratitude for and admiration of the brilliant deeds of arms achieved by General Havelock and his gallant troops, will cheerfully waive his rank on the occasion and will accompany the force to Lucknow in his civil capacity as Chief Commissioner—tendering his services to General Havelock as a volunteer".

In this connection the Commander-in-Chief published an Order dated 28th September—"Seldom, perhaps never, has it occurred to a Commander-in-Chief to publish and confirm such an order as the following one, proceeding from Major-General Sir James Outram, K. C. B.

With such a reputation as Major-General Sir James Outram has made for himself he can well afford to share honour and glory with others. But that does not lessen the value of the sacrifice he has made with such disinterested generosity in favour of Brigadier-General Havelock, C. B., commanding the field force in Oudh.

Concurring, as the Commander-in-Chief does, in everything stated in the just eulogy of the latter by Sir James Outram, his Excellency takes this opportunity of publicly testifying to the Army his admiration for an act of self-sacrifice and generosity, on a point which, of all others, is dear to a soldier.

The confidence of Major-General Sir James Outram in Brigadier-General Havelock is indeed well justified. The energy, perseverance, and constancy of the Brigadier-General have never relaxed throughout a long series of arduous operations, in spite of scanty means, a numerous and trained enemy, and sickness in his camp. Never have troops shown greater or more enduring courage than those under the orders of Brigadier-General Havelock."

Outram accordingly took part in the advance on Lucknow as a trooper in Captain Barrow's Volunteer Cavalry, while carrying on his duties as Chief Commissioner. Of an attack on the 20th September, Havelock wrote:—"This morning I attacked the enemy, turned his right, and drove him from his position, with the loss of four guns, two of which with the regimental colour of the 1st Bengal N.I. were captured by the volunteer cavalry in a charge headed by Sir James Outram." Of this affair which took place at Mangalwar, it has been related:—"Outram led on his little troop of horse with as much ardour as when he started in pursuit of Dost Mahomed, nineteen years before". He carried no sword, but a stout Malacca cane.

On the morning of the 23rd September Havelock's force continued the advance on Lucknow, and came into contact with the enemy, who was posted about the Alum Bagh, early in the afternoon. The rebels had ten thousand troops on a front of two miles, with very superior cavalry and artillery. But they were soon driven out of the Alum Bagh, when the pursuit was taken up by Olphert's guns and the Volunteer Horse, who chased them as far as the Char Bagh bridge. Here the enemy was intrenched and a halt was made for the night, the troops being cheered by news of the capture of Delhi. On the 25th, refreshed by a day's halt, the troops advanced again, captured the Char Bagh bridge,

and the column, with Havelock and Outram at the head, reached the Bailey Guard Gate after desperate fighting in which the gallant Neill was killed, and Outram received a flesh wound in the arm. Lucknow was relieved.

Next day Outram assumed command and issued a general order which is of historic interest:—

" The Major-General deeply laments the heavy cost at which the relief of our countrymen has been purchased; but the glorious devotion with which the gallant dead, and equally gallant survivors, staked their lives to rescue the Lucknow garrison, will deeply be appreciated by our Queen and country; .....the Major-general would specially note the behaviour of the 90th Regiment, who led the advance of the left bank at Mangalwara; that of the Volunteer Cavalry, who charged the artillery of the retiring enemy, and captured two of their guns; that of the 84th and detachment of the 64th who led the attack on the enemy's left at Alum Bagh; of Captain Olphert's battery, who so bravely followed up their retreat on that occasion; that of Major Eyre's battery, in opposing the enemy, who afterwards bore on their position; that of the 5th Fusiliers and Captain Maude's battery who led the column on the 25th instant, under a most murderous fire; that of the 1st Fusiliers (Madras), who charged the bridge and the battery at the entrance of the city, headed by the gallant Assistant-Adjutant General, Lieutenant Havelock; and finally that of the 78th Highlanders, who led the advance on the Residency, headed by their brave commander, Colonel Stisted," These were events which occurred under Outram's personal observation.

Although Lucknow had been relieved the relief was in no sense complete. The relieving force was itself beleaguered, and there was no possibility of removing either the non-combatants who had been long besieged, or the troops who had so gallantly defended them. The garrison was indeed reinforced but without any addition to the supplies, and the principal relief was obtained through the extension of the occupied area, hitherto confined to the Residency. The palaces extending along the river to the Kaiser Bagh were occupied, and this afforded relief although

the position was too extensive for the available troops, Some of the enemy's guns were destroyed by a sortie the following day-27th September, and succeeding sorties improved the position of the defenders. But the object of the relief, which was the withdrawal of the women and children, numbering nearly 500, could not be effected. It was necessary to remain in the Residency until the arrival of further help.

The defence was actively conducted, but it was not until November that Lucknow was finally relieved by Sir Colin Campbell's column. The garrison cooperated in the final advance which took place on the 17th November 1857, when Outram and Havelock went out to meet Sir Colin at the Mess-House. The non-combatants were withdrawn and Outram was left in command of the garrison at Alum Bagh, having a force of 4000 men and 22 guns and ten mortars. The city remained in the hands of the rebels. Outram's operations during the interval until the capture of Lucknow by Sir Colin Campbell's army in March 1858 present no features of special interest. He maintained the activity of his force, sustained several attacks by the enemy, kept his troops mobile and cooperated in the final operations which led to the capture of the city. He was afterwards transferred to Calcutta as Military Member of the Governor-General's Council. But he did not long hold this appointment. Like so many officers who have spent their lives in the East and passed a generation in the service of their country, he had suffered in health from the rigours of climate and the strain of arduous undertakings in which he never spared himself. His constitution was undermined and his wiry frame was worn out.

In 1860 he left for England after more than forty years' service in India. His health gradually failed, and on the 11th March 1863 he passed to his last rest. His remains found a fitting place among the illustrious dead, buried in Westminster Abbey, and on a memorial erected on the Calcutta Esplanade it is recorded.

**HIS LIFE WAS GIVEN TO INDIA :**

**IN EARLY MANHOOD HE RECLAIMED WILD RACES BY WINNING THEIR HEARTS:  
GHAZNIKEAT THE INDIAN CAUCASUS, WITNESSED THE DARING DEEDS OF HIS  
PRIME :**

**Biographical Sketches.**

**PERSIA BROUGHT TO SUE FOR PEACE-LUCKNOW RELIEVED, DEFENDED, AND  
RECOVERED, WERE THE FIELDS OF HIS LATER GLORIES.  
MANY WISE RULERS, MANY VALIANT CAPTAINS, HATH HIS COUNTRY SENT HITHER;  
BUT NEVER ANY AS LOVED AS THIS MAN WAS, BY THOSE WHOM THEY GOVERNED  
OR LED TO BATTLE!**

**FAITHFUL SERVANT OF ENGLAND :  
LARGE-MINDED AND KINDLY RULER OF HER SUBJECTS :  
DOING NOUGHT THROUGH VAINGLORY, BUT 'EVER ESTEEMING OTHERS BETTER  
THAN HIMSELF'**

**VALIANT, INCORRUPTIBLE, SELF-DENYING, MAGNANIMOUS.  
IN ALL THE TRUE KNIGHT !**

—: o :—

**IF AN OPPONENT ONCE STYLED HIM THE BAYARD OF INDIA,\*  
THEY WHO SET UP THIS MEMORIAL MAY WELL LACK WORDS  
TO UTTER ALL THEIR LOVING ADMIRATION !**

Great as were his deeds, it has already been said that James Outram was great even more by character than achievement. His independence of character, which led him fearlessly to support what he considered to be right, however exalted his opponents, was not the least of his qualities, and was shared with him by John Nicholson. Other outstanding characteristics were determination, resource, and courage both physical and moral. As a young man he possessed that soundness of judgment, quick decision, unflinching determination, calmness both in council and action, and fearless personal intrepidity which so preeminently distinguished him in after years. He invariably led the way on all occasions of doubt, difficulty, or danger, and seemed instinctively to command the support of everyone, whether European or native, who followed his leadership or acted under his orders. Some of his attributes may appear quixotic in a more prosaic age. He possessed that wide sympathy which is the greatest and perhaps the rarest of all human attributes, having its origin in the negation of all selfishness and self-seeking. There was never a man more entirely simple and free from all self-consciousness, and, as recorded on his tomb, he made a practice of 'esteeming others better than himself', of looking less at his own interests and more at the interests of others. Surely, like Bunyan's Christian, "when he passed over the River all the trumpets sounded for him on the other side."

---

\*Sir Charles Napier.

## **THE EDUCATION OF INDIAN OFFICERS.**

BY

MAJOR G. BENSON-COOKE, 80th. INFANTRY.

Now that so much more is required of Indian Officers than formerly, the question of their education in future certainly calls for serious consideration. The pamphlet relating to the training and employment of platoons S. S. 143 issued by the General Staff lays down the duties of Platoon Commanders. To carry out these duties efficiently and in the spirit laid down in the pamphlet demands a higher standard of education and general intelligence than we find the average Indian Officer possessed of at present.

To reach this standard, let us look at our raw material and consider what can be done to bring about the necessary alteration.

S. S. 143 was written originally for British N. C. O's. and the young British Officer. Of these even the British N. C. O. starts with an infinitely better education behind him than any I. O. has had. We certainly have not the time or the means to give our raw material such an education, for one thing we begin too late to hope to achieve this. On the other hand a man to have become an I. O. or a senior N. C. O. must have a considerable amount of character and determination and he generally possesses a fair share of natural common sense.

We have to work on this and build up what we want on it.

The system experimented with in the present training season of holding brigade classes for the training of Indian Officers on the lines of classes held in Egypt lately has been beneficial not only in training the I. O's. who have attended these classes but also in bringing to light the points where they fail as Platoon Commanders, and indicating the lines which future training should follow.

The progress made by individuals was usually in proportion to the amount of their previous education. Signallers for instance were much quicker at grasping the meaning of what they

were being taught than those who had not had the benefit of even as much education as a man requires to become a signaller.

Here we may digress to consider the standard of education aimed at in the regimental schools.

Para 1 of the General Regulations for India Army Schools referred to in para 992 A. R. I. Vol. II, lays down "the standards of education which it is hoped may, in course of time, be generally attained..... and which will ensure the efficient performance of the duties of each rank."

The "suggested table of standards" which follows is certainly by no means too ambitious a one to hope to work up to in ordinary peace time, though it is doubtful if even this is attained in many cases. It is probable that if a little more money were spent on improving these schools and if they were more carefully and systematically supervised, the results obtained would approximate more nearly to the spirit of these regulations.

The pay, and possibly the rank, of the teachers might be improved, and an adequate school building should in every case replace the usual tumble down hovels which are used for this purpose.

Books, implements, facilities for writing etc. should all be provided in larger numbers and usually of a better quality.

Last, but most important of all, more use should be made of British Officers in close supervision of at least the advanced stages of regimental education.

The Quartermaster probably has quite sufficient to do to cope with his ordinary work, and he would probably not usually have leisure to devote sufficient time to the school to be able to do more than conduct examinations, which is not really the most important part of the work of supervision.

Steps should be taken to ensure that a British Officer who is keen on the work shall supervise the school and keep an eye on the daily progress made in it, certainly as regards the higher training given in it.

Regarding the training of Platoon Commanders, they might either be specially trained before they reach commissioned rank,

that is as Havildars etc, in which case the course of special training might be used as a means of selecting those thought suitable for promotion, or they might be trained after becoming Indian Officers. Such special training might be carried out in any of three ways.

(i) A central training school might be formed, which would become a sort of Sandhurst for I. O. s.

(ii) The training might be carried out in similar schools formed in Brigades or in Divisions.

(iii) Training might be left entirely to regiments, provided that a certain fixed standard is laid down which would have to be worked up to in every unit.

Taking the first method.

(i). In favour of this, we should have one school of thought and a guarantee of uniformity such as was attained in the instruction imparted in the Mountain Warfare School at Abbottabad.

Better facility too would exist in such an institution for instruction than would usually be forthcoming in units.

Against this, however, we have the great disadvantage that Indian Officers or senior Non-Commissioned Officers would be taken away from their units for a considerable period, and that, since in the case of N. C. Os. they would be presumably the best men in the regiment, training, interior economy and discipline in the unit would be likely to suffer as a consequence of their removal.

Even if the course were always held in the hot weather months, the loss of a number of N. C. O's. or I. O's. would still be felt very considerably as it might interfere with the leave or furlough of others. Further—more, the creation of a sort of Sandhurst might give a wrong impression to the students, and end merely in making them dissatisfied with their lot by endeavouring to overeducate them.

What is required as a result of any course instituted is a supply of Platoon Commanders capable of carrying out the duties laid down in S. S. 14 3, and not the creation of a class of men



who consider themselves as umedwars for British Officers commissions We want to ensure the creation of a suitable class of Platoon Commander, but not to go beyond that and so defeat our object.

(ii). Considering the second proposal, namely to form Divisional or Brigade Schools, we have here the advantage that such schools would be under the direct supervision of the G. O's. C. these formations and their staff officers who could keep an eye on the progress made. The officer actually running the school would be in the position for the time being of a staff officer for training to that Brigade or Division, The success of either of these two schemes is dependent on whether it can be ensured that all I. O's. shall, either before promotion or shortly afterwards, have undergone a full course.

If promotion does not depend on getting a certificate at a school, the most probable result will be that C. O's. will not be inclined to lose the services of their best men by sending them to the schools.

Brigade classes for the instruction of I. O's have lately been in existence, the circumstances contemplated in Training and Manoeuvre Regs. 1913 para 4 having rendered the employment of such classes advisable.

The experience gained in these classes seems to show:—

- (i) A general keenness on the part of I. O's. to learn.
- (ii) A partial failure on the part of units always to follow out the lines laid down in Tr. and Man. Regs. (due to the peculiar conditions existing during the war) as regards training.
- (iii) The necessity for issuing out maps of the surrounding country to all I. O's. so that they can carry them on route marches and manoeuvre parades and get the habit of constantly comparing them with the ground they pass over.
- (iv) The advisability of combining purely military training with some form of education which will stimulate the minds of the students and make them exercise their powers of thought and concentration.

The third proposal, namely to confine the training and education of Platoon Commanders to the regiment, has the advantage of:—

- (i) Fulfilling the spirit of T. and M. Regs. para 4.
- (ii) It would afford extremely good practice for the British Officer who was charged with the duty of carrying it out.
- (iii) It does not entail taking anyone away from the unit.
- (iv) There is no risk of losing one's best men, speaking from the point of view of the regimental officer, by having them taken away as instructors to some central school.
- (v) It enables the C. O. to keep an eye on the work done and to weed out unsuitable men at an early stage, a considerable advantage.

Against it, there is of course the very real danger that if the instruction is not very carefully scrutinised by the Brigade Staff in which the unit is situated, it is liable to deteriorate and might easily degenerate into an indifferent course of individual training.

Regimental classes for this purpose would also be very much less expensive to arrange than any form of central school. In order to ensure uniformity a general syllabus and programme of work would have to be laid down for everyone, leading up to certain definite tests and examinations. Regarding the actual means to be adopted for improving the I. O's. mind, it is necessary to make a careful study of his outlook on life and general intelligence as it stands at present.

The late Major Alves ("Neyauk") in one of his numerous and amusing articles on the Indian Army refers to the old tale of the Subedar who was shown a picture of a battleship, which he proceeded to hold upside down and then expressed his opinion of it after a short contemplation by saying "bahut achha bungla hai."

There is many a true word spoken in jest, and it is doubtful if it is fully realised how few Indians follow our form of thought

sufficiently to appreciate even quite simple photographs and pictures.

A liberal use of these latter in any course laid down for I. O's. would probably have a very beneficial effect.

Plasticine models too are a most excellent means of teaching map construction and map reading, and, when used in conjunction with maps, for teaching geography.

Possibly travelling cinemas of a purely educational nature might also be used.

Sand models are useful but it is hard to inculcate any sense of proportion to Indians when using them, and in many cases the models made up of hills &c. do not convey any idea of real country to their minds.

Better than this, is the model landscape with grass planted on it, small bushes to represent trees, huts, houses &c. in miniature.

These are often found in connection with a miniature range and if a little trouble is taken to keep them in good repair and prevent the bushes from growing out of proportion to the rest of the landscape, they form a valuable aid to any instruction. Fire control and direction, (Memorandum on Army Training in India 1917, pages 40-43,) can be taught most excellently on such model landscapes, and the use of small iron figures which are knocked out of the ground when hit and which represent enemy troops, add to the interest, more especially as the strike of bullets and the consequent effect produced by the carrying out of fire orders can always be seen. Very many I. O's. have proved that however little intelligence they may appear to possess, they nevertheless have the great natural advantage of a good military instinct, this has been proved on many occasions in action during the war, when I. O's or N. C. O's. and sometimes sepoy by themselves have acted instinctively under very difficult circumstances, in exactly the right manner and have carried out extremely difficult and dangerous tasks, adopting courses which would probably not have occurred to them had they been carrying out the same manoeuvre as a staff ride or regimental tour in peace time.

This however does not mean that we should be content to leave matters as they are and trust to this instinct to help them to arrive at correct decisions in the field.

Nothing but good can come of developing these powers which they certainly possess, however latent they may be.

The only warning the example contains for us is that we must not do anything to discourage the present class from which we get our I. O's. by encouraging the writer class to supplant them in any way.

The task of educating the Indian, who is a natural soldier, up to the standard now required is a hard one, but it can be done, and it is worth doing. The casier way of selecting the class of Indian who prefers learning naturally, must be avoided. It is nearly impossible to make a man whose heart is not in the right place into a soldier, whereas, a comparatively thick headed man can if the right means be adopted, be taught to develop his brain and to absorb knowledge.

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## **DIARY OF EVENTS IN THE AFGHAN CAMPAIGN 1919.**

FROM THE 3RD MAY TO THE 15TH JUNE,

COMPILED BY H. T. S.

**May 3rd.** Khaiber Rifles escort threatened near Landi Khana by Afghan tribesmen under Zar Shah who produces a 'firman' purporting to be from Amir Amanulla and practically amounting to a decree to raise war against the British Government.

**May 5th.** 'Jirga' of Mohmands visit Chief Commissioner of North West Frontier Province and informs him they have received orders from Jalalabad to join against the British but declare their intentions of remaining loyal and ask for protection against Afghan aggression.

Afghans occupy Tor Sappar, Spin Tsuka and Bagh.

Landi Kotal reinforced from Peshawar.

**May 7th.** Aeroplane reconnaissance fired on near Landi Kotal.

**May 8th.** Afghans occupy Ash Khel, territory indisputably within British limits.

Martial law declared at Peshawar. Afghan Postmaster arrested.

**May 9th.** Afghans driven out of Ash Khel. Tangi springs and reservoirs secured. Dakka bombed by aeroplanes.

**May 11th.** Afghans defeated at Bagh and driven off Khargall ridge, losing 6 guns and 100 killed.

Aerial reconnaissance reports Dakka evacuated.

**May 12th.** Aeroplanes bomb Chora headquarters of Yar Muhammad's lashkar, in the Bazar valley.

**May 13th.** Dakka occupied without opposition.

Afghans take up positions on Paiwar Kotal.

**May 14th.** Party of Afghans defeated and driven out of Chitral limits: enemy casualties, 70.

**May 16th.** Withdrawal of our reconnaissance towards Basawal followed up by enemy who are driven off. On same night an attack on our camp at Dakka repulsed.

Sniping and wire-cutting frequent in the Khaibar.

Aerial reconnaissance of Spin Baldak and surrounding country; no signs of enemy movements.

**May 17th.** Afghan position west of Dakka attacked and enemy suffer heavy defeat with loss of 5 guns and over 300 killed.

Air raid on Basawal and Jalalabad.

Yar Muhammad's lashkar driven off hills about Ali Masjid.

**May 19th** Afghans on Paiwar ridges more aggressive.

**May 20th.** Air raid on Jalalabad.

Late Afghan envoy in India makes unofficial overtures for a cessation of hostilities.

Afghan troops and tribesmen enter Gandao valley in Mohmands country.

**May 21st.** General Nadir Khan reaches Matun in Khost. Afghan reinforcements reported to have arrived at Urgun.

**May 23rd.** Afghan force defeated near Arnawai in Chitral; 250 killed, 4 guns captured.

Nadir Khan reported to be despatching troops down the Kaitu river and towards Tochi

**May 24th.** Air raids on Kabul and Jalalabad.

Afghan troops and lashkar in Gandap valley bombed and dispersed.

**May 25th.** Evacuation of Spinwam, Shewa and Upper Tochi posts. Afghans occupy Spinwam.

**May 26th.** Nadir Khan's troops occupy hills near Thal.

Capture of Spin Baldak; practically whole Afghan garrison killed or taken prisoner.

**May 27th.** Minor attack by Afghans near Paiwar Kotal.

Enemy shell Thal.

Evacuation of Wana, Sarwakai and the militia posts in the Gomal.

**May 28th.** Lashkar collected near Miranshah. Unsuccessful attack on Idak post by tribesmen.

Shelling of Thal continues, but situation quieter towards evening.

Garrisons of South Waziristan posts arrive at Moghal Kot, in Zhob.

***Afghan Campaign.***

**May 29th.** Aeroplanes bomb enemy positions about Thal and their camp at Yusuf Khel.

Manjhi post, south of Murtaza, unsuccessfully attacked by tribal gathering.

**May 30th.** Wazirs and Mahsuds attack Moghal Kot. Militia garrisons withdraw towards Fort Sandeman.

Jandola post menaced by Mahsuds.

**May 31st.** South Waziristan militia reach Fort Sandeman having been continually harassed by tribesmen.

Letter from Amir requesting an armistice is received by Chief Political officer.

**June 1st.** Wazir Lashkar near Miranshah attacked and dispersed. Villages punished and towers blown up.

Troops despatched from Kohat reach Thal and drive enemy off hills to South-east. Enemy still occupying Khapianga hill.

**June 2nd.** Enemy on hills N -W. of Thal attacked and defeated. Hurried evacuation of Yusuf Khel Camp and withdrawal westward by enemy.

Successful attack on Afghan position near Kharlachi, on Kurram border ; 50 Afghans captured.

Aeroplanes locate and bomb enemy force at Dabrai, west of Chaman.

**June 3rd.** No Afghan troops east of Kurram River.

Column from Bannu reaches Idak on Tochi River.

Incursions by Sherannis on Derajat border in vicinity of Chaudhwan and Draband, with unsuccessful attack on latter.

Manjhi post evacuated.

Manikhwan post, in Zhob, captured by tribesmen.

**June 4th.** Bannu column establishes communication with Miranshah. Girni post visited by flying column from Khirgi.

Mahsuds and Sherannis attack Draband and Chaudhwan without success.

H. E. The Viceroy's reply to Amir offering terms of armistice despatched from Peshawar.

**June 5th.** Nadir Khan reaches Matun.

Our punitive column operates against Biland Khel villages, south of Thal.

**June 7th.** Aeroplanes bomb lashkar round Jandola. Tribesmen withdrew from Draband.

**June 8th.** Column proceeding from Lakaband to Fort Sandemand is attacked by tribesmen and suffers 33 casualties before reaching its destination.

**June 9th.** Evacuation of Dhana Sar post in Zhob.

Column visits Jandola and finds lashkar dispersing.

Punitive measures in Tochi Valley progress.

**June 10th.** Aeroplanes report Afghan encampments at Murgha Chaman and on Takht hill.

Tentative attacks made against Fort Sandeman. Party of Afghans reported in occupation of Wana. Minor attack on our pickets near Paiwar.

**June 11th.** Attack on Musa Khel post in Zhob repulsed.

Aeroplane visits Fort Sandeman and finds all well; enemy retiring northwards-

Air raid on Drazinda, west of Draband.

Move of Afghan troops to Chakmanni, on upper Kurram river.

About 1500 Afghans and Mohmands cross from north of Kabul river to Basawal village.

**June 12th.** Spin Baldak water supply cut.

**June 13th.** Air raid on Paroa village in Dera Ismail Khan district.

Musa Khel tribe profess loyalty.

**June 14th.** Air raid on Sheranni village of Parwara.

Amir's reply to H. E. The Viceroy's conditions for armistice received at Landi Kotal.

**June 15th.** Spin Baldak water supply restored.



## MACGREGOR MEMORIAL MEDALS.

1. The MacGregor Memorial Medal was founded in 1888 as a memorial to the late Major-General Sir Charles MacGregor. The medals are awarded for the best military reconnaissances or journeys of exploration of the year.

2. The following awards are made annually in the month of June:—

(a) For officers—British or Indian—a silver medal.

(b) For soldiers—British or Indian—a silver medal, with Rs. 100 gratuity.

3. For specially valuable work a gold medal may be awarded in place of one of the silver medals, or in addition to the silver medals, whenever the administrators of the fund deem it desirable. Also the Council may award a special additional silver medal, without gratuity, to a soldier, for special good work.

4. The award of medals is made by His Excellency the Commander-in-Chief as Vice-Patron, and the Council of the United Service Institution, who were appointed administrator of the Fund by the MacGregor Memorial Committee.

5. Only officers and soldiers belonging to the Army in India (including those in civil employ) are eligible for the award of the medal.\*

6. The medal may be worn in uniform by Indian soldiers on ceremonial parades, suspended round the neck by the ribbon issued with the medal.

### Note.

(i) Personal risk to life during the reconnaissance or exploration is not a necessary qualification for the award of the medal; but in the event of two journeys being of equal value, the man who has run the greater risk will be considered to have the greater claim to the reward.

(ii) When the work of the year has either not been of sufficient value or has been received too late for consideration before the Council meeting, the medal may be awarded for any reconnaissance during previous years considered by His Excellency the Commander-in-Chief to deserve it.

### MacGregor Memorial Medallists.

(With rank of Officers at the date of the Award).

1889...BELL, Col.M.S., V.C., R.E. (specially awarded a gold medal).

1890...YOUNGHUSBAND, Capt. F.E., King's Dragoon Guards.

1891...SAWYER, Major H. A., 45th Sikhs.

RAMZAN KHAN, Havildar, 3rd Sikhs.

1892...VAUGHAN, Capt. H. B., 7th Bengal Infantry.

JAGGAT SINGH, Havildar, 19th Punjab Infantry.

1893...BOWER, Capt. H., 17th Bengal Cavalry (specially awarded a gold medal).

FAZALDAD KHAN, Dafadar, 17th Bengal Cavalry.

1894...O'SULLIVAN, Major G. H. W., R.E.

MULL SINGH, Sowar, 6th Bengal Cavalry.

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\* NB—The terms "officer" and "soldier" include those serving in the British and Indian armies and their reserves; also those serving in Auxiliary Forces, such as the Volunteers and Corps under Local Governments, Frontier Militia, Levies and Military Police, also all ranks serving in the Imperial Ce Troops.

# *Journal*

OF THE

## *United Service Institution of India.*

Published under the Authority of the Council.



SIMLA:

UNITED SERVICE INSTITUTION OF INDIA.

Published Quarterly.

XXXX

Price Rupees 2.

Printed by S. H. LADDILL, Longacre, Simla.

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## Contributions to the Journal.

All papers must be written in a clear, legible hand, and only on one side of the paper. All proper names, countries, towns, rivers, etc., must, when in manuscript, be written in capital letters. All plans must have a scale on them.

Contributors are responsible, when they send articles containing any information which they have obtained by virtue of their official positions, that they have complied with the provisions of A. R. I., Vol. II., para. 487, and King's Regulations, para. 453.

Anonymous contributions under a *nom-de-guerre* will not be accepted or acknowledged; all contributions must be sent to the Secretary under the name of the writer, and the paper will, if accepted, be published under that name unless a wish is expressed for it to be published under a *nom-de-guerre*. The Executive Committee will decide whether the wish can be complied with.

The Committee reserve to themselves the right of omitting any matter which they consider objectionable. Articles are only accepted on these conditions.

The Committee do not undertake to authorise the publication of such papers as are accepted, in the order in which they may have been received.

Contributors will be supplied with three copies of their paper *gratis*, if published.

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**The General Officer Commanding, Southern Command.**

### **MEMBERS OF THE COUNCIL, 1919-20.**

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- |   |  |
|---|--|
| 1. The Chief of the General Staff.                                | 7. The Hon'ble Major-Genl. W. R. Edwards,<br>C.B., C.M.G.  |
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|  | *9. Major A. I. Sleight.             |

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<b>SUPERINTENDENT</b>	.. S. SERGT. W. BHER.
<b>BANKERS</b>	.. ALLIANCE BANK OF SIMLA, LTD.


1. The United Service Institution of India is situated at Simla.
2. Officers wishing to become members of the United Service Institution of India should apply to the Secretary. The rules of membership are printed on the opposite page.
3. The reading-room of the Institution is provided with all the leading newspapers, magazines, and journals of military interest that are published.
4. There is a well-stocked library in the Institution, from which members can obtain books on loan, free. Suggestions for new books are solicited, and will be submitted to the Committee. Books are sent out to members V. P. for the postage, or bearing by railway.
5. The Institution publishes a Quarterly Journal in the months of January, April, July and October which is issued postage free to members in India and to all life members; but ordinary members wishing to have their journals sent to any address out of India must pay in advance Re. 1 per annum to cover foreign postage charges.
6. Members and the public are invited to contribute articles to the Journal of the Institution for which honoraria will be awarded by the Executive Committee. Rules for the guidance of contributors will be found on the opposite page.
7. **MEMBERS ARE RESPONSIBLE THAT THEY KEEP THE SECRETARY CAREFULLY POSTED WITH REGARD TO CHANGES OF ADDRESS.**
8. When on leave in England, members can, under the affiliation rules in force, attend the lectures and make use of the reading-room, etc., of the Royal United Service Institution, Whitehall, on payment of a subscription of 5 shillings per six months.

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# United Service Institution of India.

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OCTOBER 1919.

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## SECRETARY'S NOTES.

### I.—New Members.

The following members joined the Institution between the 23rd June and 27th September 1919:—

#### LIFE MEMBERS.

Captain A. S. Brooke.

Captain E. A. H. Mackenzie (from Ordinary.)

#### ORDINARY MEMBERS.

Lieut. H. W. Foster.

Lieut. F. C. Dominy.

Lieut. R. W. A. Wallace.

Lieut. G. T. Goldschmidt

Major W. C. N. Lee.

Major R. H. Macdonald.

Major D. G. M. Shewen.

Brig.-General W. S. Leslie.

Capt. C. R. B. Knight.

Capt. R. B. Harward.

Lieut. I. C. Byrne.

### II.—Tactical Problems.

In order to assist officers working for tactical examinations, the Institution has schemes with maps and solutions for issue to members only, at Rs. 2-8-0 each. 26 different schemes are now available.

### III.—Maps.

The Institution has for sale a variety of large scale maps (1 and 4 inches to one mile), price As. 8 each.

They are specially useful for instruction in map reading, tactical schemes and in preparation for examinations; maps of both English and Indian country are available.

### IV.—Payment for Articles in the Journal.

Articles accepted for publication in the Journal are paid for, and a sum of approximately Rs. 400 is awarded for articles and reviews published in each Quarterly Journal.



**V.—Contributions to the Journal.**

With reference to Army Regulations, India, Volume II, paragraph 487, and King's Regulations, paragraph 453, as amended by Army Order 340 of 1913, intending contributors to the Journal of the United Service Institution of India are informed, that action to obtain the sanction of His Excellency the Commander-in-Chief to the publication of any article in the Journal of the United Service Institution of India will be taken by the Committee. Contributors are, therefore, responsible that the sanction of their immediate superior has been obtained, and this should be noted on all articles sent for publication. Articles need not be submitted in duplicate.

Contributors must have their articles either typed or printed.

**VI.—Library Catalogue.**

The library catalogue revised up to 1st January 1916 is now available. price Rs. 2 or Rs. 2-4-0 per V.P.P. A list of books received each year is published with the January Journal.

**VII.—Gold Medal Prize Essay 1919-20.**

For subject and conditions please see page VI.

**VIII.—Payment of Subscriptions.**

Members are reminded that subscriptions for any given year are due on the 1st January. Bills or reminders are only sent when subscriptions are overdue. This year about 600 bills had to be sent out, and unnecessary expense in establishment and postage was incurred. It is particularly requested that members, who do not already pay their subscriptions by means of bankers orders, will adopt this method of payment. The necessary form will be found at the end of these notes.

**IX.—Addresses.**

Members are particularly requested to keep the Secretary informed of all changes of address in accordance with Rule VI-11 which reads:—

“Members are responsible that they keep the Secretary carefully posted in regard to changes of rank and address. Duplicate copies of the Journal will not be supplied free to members when the original has been posted to a member's last known address, and has not been returned by the post.”

Complaints are continually received that Journals are not delivered and avoidable expense is incurred by the institution in sending additional copies.

A postcard is enclosed and the Secretary would be glad if all members would complete this and return it.

**X.—Resignations.**

Members who wish to resign from their membership of the U. S. I. should inform the Secretary before the 1st January in any year to avoid the liability for subscription for that year. If any member wishes to resign before the 1st January 1920 he is requested to inform the Secretary on the postcard enclosed for addresses.

## **Secretary's Notes.**

iii

### **II.—Sale of Periodicals.**

The following periodicals were sold at the prices given for the half year ending 31st December 1919.

				Rs.	A.	P.
The Empire Review	...	...	...	3	0	0
The Geographical Journal	...	...	...	6	0	0
The Army and Navy Gazette	...	...	...	10	4	0
The Weekly Times	...	...	...	4	0	0
The Asiatic Review	...	...	...	7	0	0
Arms and Explosives	...	...	...	2	8	0
The Indian Military Record	...	...	...	2	0	0
The Journal of the U.S. Infantry Association.				1	4	0
The National Service Magazine U.S. A.	...			1	4	0
Memorial d' Artilleria	...	...	...	1	0	0
Blackwoods Magazine	...	...	...	12	0	0
Revue Militaire Suisse	...	...	...	2	0	0
Revista Artiglieria E. Genio	...	...	...	2	0	0
The Journal of the U. S. Artillery	..	...	...	2	0	0
The Colonial Journal	...	...	...	1	0	0

Lots were drawn in cases, where the same bid was received from one or more members.

A new list for 1920 is enclosed and members are particularly requested to return this with their bids by the 20th December 1919.

### **III.—Army List Pages.**

The U. S. I. is prepared to supply members and units with manuscript or typewritten copies of Indian Army List pages, at the following rates:—

Manuscript, per page Re. 1.

Typewritten, per page Rs. 2.

### **III.—Books.**

#### *Books Presented.*

The War Work of the Y.M.C.A. in Egypt		presented by	Sir J. W. Barrett K.B.E., C.B.
A Vision of the possible.	do.	Lieut.-General	Sir E. A. Altham K.C.B., K.C.I.E.
The Twin Ideals Vols. I and II.	do.		do.
Australian Army Medical Corps in Egypt.	Barret and Deane.	do.	do.



**Secretary's Notes.**

The Punjab Campaign 1848-49.	L. Archer.	Col. J. H. Lawrence Archer, C.I.E.
Sketches on Service dur- ing the Indian Frontier Campaigns of 1897.	Major E.A.P. Hobday. R. A.	do.
The Berlin Court under William II.	Count Alex Von Shch- wering.	do.
The British Army—its Regimental Records etc.	Maj. J.H.L. Archer.	do.
J'Accuse.	By a German.	do.
Native Life in East Africa.	Weule.	Maj. G.B. Sankey.
The Art of Boxing,	Chief Staff Instructor. J.O'Niel R. N.	Messrs. Gale and Polden.
The Art of Wrestling.	G. de Relwyskow.	do.
The Visual Training of the Soldier.	Capt. J. C. Goodwin.	do.
Drill and Training Re- membrancer.	Lt.-Col. W. B. Dauntsey	do.
Ten Lectures on Field Sanitation.	C. B. Moss-Blundell.	do.
The Year Book of Wireless Telegraphy and Tele- phony 1919.	Marconi Company.	The Authors.
N. R. A. 1918.	N. R. A.	do.
Notes on Infantry Tactics and Training.	Lt.-Genl. Sir G. M. Harper.	Messrs. Sifton, Praed and Co.
Notes on Horsemastership	Major R. S. Timmis.	Messrs Forster and Groom.
Imperial Defence after the War	B. Lt.-Col. R. F. Cottrell D.S.O.	The Author.

**Books Purchased.**

Nelson's History of the War. Vol 23	J. Buchan	M. 871
The Long Road to Baghdad Vols I & II	E. Candler	M. 932
1914.	...Lord French	M. 935
Forty Days in 1914	...Major Genl. Sir F. Maurice	M. 934
The Principles of War	...Marshal Foch	M. 933

## ***Secretary's Notes.***

### ***Books Ordered.***

- |  |   |
|--|---|
| Economic Statesmanship                                       | ...J. E. Barker.  |
| Through the Hindenburg Line                                  | ...F. A. McKenzie.  |
| The Grand Fleet 1914-16                                      | ...Admiral Viscount Jellicoe.                                       |
| Q. Boat Adventures   | ...Lt. Commander H. Auten.  |
| Marshal Foch-His Life etc.                                   | ...A. Hilliard Atteridge.   |
| Five months on a German Raider..By an Englishman.            |   |
| Belgium under the German occu-<br>pation                     | ...Braud Whitlock.  |
| The Naval Annual 1919.                                       | ...Earl Brassey and John Leyland                                    |
| The Safety of the Nation                                     | ...Ian D. Colvin.   |
| The Harwich Naval Forces                                     | ...E. F. Knight.  |
| The Flags of Our Fighting Army<br>etc.                       | ...S. C. Johnson.   |
| The Last Million   | ...Ian Hay.   |
| Falklands, Jutland & The Bight..Commander the Hon. B.Bingham | R. N.   |
| Under the Periscope  | ...Lieut. M. Bennet.  |
| Four-Fifty Miles to Freedom                                  | ...Capt. M. A.B. Johnston, R.G.A.,<br>and Capt. K.D. Yearsley, R.E. |
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## United Service Institution of India.

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### GOLD MEDAL ESSAY COMPETITION 1919-20.

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The Council have chosen as the subject for the Gold Medal Essay for 1919-20 the following:—

Under K. R. 106 Commanding Officers are responsible for the systematic and efficient instruction of officers under their command in all professional duties, and for their due preparation for examination for promotion.

Having regard to the extended scope of an officer's professional duties since the war, is the system above indicated the one best calculated to secure the efficiency to be arrived at, and if not, what system of instruction should take its place?

The following are the conditions of the competition:—

- (1) The competition is open to all gazetted officers of the Civil Administration, the Royal Navy, Army, and Royal Air Force or Indian Defence Force who are members of the U. S. I. of India.
- (2) Essays must be printed or type-written and submitted in *triplicate*.
- (3) When a reference is made to any work, the title of such work is to be quoted.
- (4) Essays are to be *strictly anonymous*. Each must have a motto, and enclosed with the essay there should be sent a *sealed* envelope with the motto written on the outside and the name of the competitor inside.
- (5) Essays will not be accepted unless received by the Secretary on or before the 30th June 1920.
- (6) Essays will be submitted for adjudication to Referees chosen by the Council. No medal will be awarded if the Council consider that the best essay is not of a sufficient standard of excellence.
- (7) The name of the successful candidate will be announced at a Council Meeting to be held in September or October 1920.
- (8) All essays submitted are to become the property of the United Service Institution of India, *absolutely* and authors will not be at liberty to make any use whatsoever of their essays without the sanction of the Council.
- (9) Essays should not exceed about 15 pages of the size and style of the Journal, exclusive of any appendices, tables or maps.

By order of the Council,

SIMLA, }

C. E. L. JOHNSTON, MAJOR, R.A.,

30th June 1919. }

Secretary, U. S. I. of India.

### MacGregor Memorial Medallists—*contd.*

- 1895...DAVIES, Capt. H. R., Oxfordshire Light Infantry.  
GANGA DYAL SINGH, Havildar, 2nd Rajputs.
- 1896...COCKERILL, Lieut. G. K., 28th Punjab Infantry.  
GHULAM NABI, Sepoy, Q. O. Corps of Guides.
- 1897...SWYAYNE, Capt. E. J. E., 16th Rajput Infantry.  
SHAHZAD MIR, Dafadar, 11th Bengal Lancers.
- 1898...WALKER, Capt. H. B., Duke of Cornwall's Light Infantry  
ADAM KHAN, Havildar, Q. O. Corps of Guides.
- 1899...DOUGLAS, Capt. J. A., 2nd Bengal Lancers.  
MIHR DIN, Naik, Bengal Sappers and Miners.
- 1900...WINGATE, Capt. A. W. S., 14th Bengal Lancers.  
GURDIT SINGH, Havildar, 45th Sikhs.
- 1901...BURTON, Major E. B., 17th Bengal Lancers.  
SUNDAR SINGH, Colour Havildar, 31st Burma Infantry.
- 1902...RAY, Capt. M. R. E., 7th Rajput Infantry.  
TILBIR BHANDARI, Havildar, 9th Gurkha Rifles.
- 1903...MANIFOLD, Lieut.-Colonel C. C., I.M.S.  
GHULAM HUSSAIN Lance-Dafadar, Q. O. Corps of Guides.
- 1904...FRASER, Capt. L. D., R.G.A.  
MOGHAL BAZ, Dafadar, Q. O. Corps of Guides.
- 1905...RENNICK, Major F., 40th Pathans, (specially awarded a gold medal).  
MADHO RAM, Havildar, 8th Gurkha Rifles.
- 1906...SHAHZADA AHMAD MIR, Risaldar, 36th Jacob's Horse.  
GHAFUR SHAH, Lance-Naik, Q.O. Corps of Guides Infantry.
- 1907...NANGLE, Capt. M. C., 92nd Punjabis.  
SHEIKH USMAN, Havildar, 103rd Mahratta Light Infantry.
- 1908...GIBBON, Capt. C. M., Royal Irish Fusiliers.  
MALANG, Havildar, 56th Punjabi Rifles.
- 1909...MUHAMMAD RAZA, Havildar, 106th Pioneers.
- 1910...SYKES, Major P. M., c.m.g., late 2nd Dragoon Guards.  
(specially awarded a gold medal).  
TURNER, Capt. F. G., R.E.  
KHAN BAHADUR SHER JUNG, Survey of India.
- 1911.. LEACHMAN, Capt. G. E., The Royal Sussex Regiment.  
GURMUKH SINGH, Jemadar, 93rd Burma Infantry.
- 1912...PRITCHARD, Capt. B.E.A. 83rd Wallahabad Light Infantry.  
(specially awarded a gold medal).  
WILSON, Lieut. A. T., c.m.g., 32nd Sikh Pioneers.  
MOHIBULLA, Lance-Dafadar, Q. V. O. Corps of Guides.
- 1913...ABBAY, Capt. B. N , 27th Light Cavalry.  
SIRDAR KHAN, Sowar, 39th (K.G.O.) Central India Horse.  
WARATONG, Havildar, Burma Military Police (specially awarded a silver medal .
- 1914...BAILEY, Capt. F. M., I.A. (Political Dept.)  
MORSHEAD, Capt. H. T., R.E.  
HAIDAR ALI, Naick, 106th Hazara Pioneers.
- 1915.. WATERFIELD, Capt. F. C., 45th Rattray's Sikhs.  
ALI JUMA, Havildar, 106th Hazara Pioneers.
- 1916...ABDUR RAHMAN, NAIK, 21st Punjabis.  
ZARGHUN SHAH, Havildar, 58th Rifles (F. F.)  
(Specially awarded a Silver Medal).
- 1917...MAIN AFRAZ GUL, Sepoy, Khyber Rifles.
- 1918...NOEL, Capt. E. W. C., Political Department.
- 1919...KEELING, Lt.-Col. E. H., M.C., R.E.  
ALLA SA, Jamadar, N. E. Frontier Corps.

**The Journal**  
OF THE  
**United Service Institution of India.**

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**Vol. XLVIII.      OCTOBER 1919.      No. 217.**

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*Pages*

**358      to      388**

***withdrawn.***

## **STOKES MORTARS AS A CAVALRY WEAPON.**

BY

LIEUT.-COLONEL B. ABBAY, 27th LIGHT CAVALRY.

No one who has not pursued raiders all day over the burning sands and beneath the brazen skies of the Frontier with a temperature of 120° in the shade, and a water bottle of tepid chlorinated Epsom Salt, can imagine the chagrin, when, after surrounding the enemy in some stronghold towards evening, it is found that the guns are so far behind, that they cannot come up in time to finish off the "show" at once, and a line has to be drawn round the enemy's stronghold which is as capable of holding them, once darkness falls, as a sieve is of holding water, and the knowledge is forced home that at dawn the enemy will be many miles away.

The re-issue of the withdrawn bayonets to Cavalry on the Frontier has opened again the possibility of pressing home a dismounted attack, but only with heavy loss of valuable lives, a course every soldier will adopt reluctantly when the quarry is vermin.

Even the arrival of the guns may be of little avail, if the trajectory is too flat to enable them to hit the lair of the tribesmen, and some device must be thought of to bolt the pursued.

Now the advantages of arming Cavalry Regiments on the Frontier with a Stokes Mortar are as follows:-

(a) Stokes Mortars are easily carried on a Pack Horse, 12 Shells go to a load. The Section is as mobile as a Hotchkiss Gun.

(b) Cavalry men can be turned into Stokes Gunners in a month.

(c) Stokes Mortars can be used for High Angle fire, and to hit a target in a nalla or in dead ground that a gun could not reach.

(d) They can also be used as a gun for direct fire. It has frequently been stated that Stokes Mortars are no use on the Frontier, because they will not blow down

### **Stokes Mortars.**

towers. The people who make this statement forget that every tower has a door and that every tower has a roof, and that the Stokes Mortar is so accurate a weapon that shells can be dropped on to a roof or fired into a doorway with certainty, if a team is fighting that has specialised in the handling of the Stokes Mortar.

Now a 10·2 lb. shell dropped on a roof and exploding there has a very different effect to one bursting on the side of a mud tower. Also a shell bursting in a doorway is very effective. I will give some examples.

A village was subjected to trench mortar fire; it was found that where the shells fell on a roof, they either went through it and burst, wounding everything in the room below, or they blew a hole in the roof.

Nine raiders were surrounded in a village; as the result of a Stokes Mortar, they fled to the Masjid; a shell fell on the Masjid Roof, went through, killed two and wounded six. The effect was excellent as their rifles were at once thrown out into the street and they surrendered.

To sum up:-

Stokes Mortars can keep up with Cavalry.

They are effective if used against Frontier Buildings, Nallas etc.

The Personnel can be easily trained.

The following is suggested as a Detachment:-

N. C. O's	1	} for one Mortar.
Sowars	4	

Transport:- (a) With squadron. Gun and Bipod on one Horse  
24 Shells on two Horses.

(b) With 1st line 36 Shells on three Mules.

Transport.

A squadron recently got into difficulties in very bad country; a Stokes Mortar came into action and fired 8 Shells, on which the enemy (Mahsuds) fled hastily.

**NOTE ON A JOURNEY FROM TASHKURGHAN  
IN SARIKOL TO YARKAND VIA SHINDI, WACHA,  
DAFDAR, ILI SU, RASKAM FURZANAK, KULAN  
AGHIL, CHUP, SHAKSU, POKHPU, AK MASJID,  
AND TIZNAF, IN OCTOBER 1918.**

BY CAPT. L. V. S. BLACKER, Q. V. O. CORPS OF GUIDES F. F.

This journey was undertaken in pursuit of a gang of hostile agents, and since it traversed some considerable amount of ground not yet explored or surveyed, may be of some geographical interest. It would seem that Grombchevsky and Dauvergne are the only travellers who have been near Chup, Shaksu or Pokhpu, whilst the section Raskam, Furzanak, Pilipert Kulan Aghil has seen no European, though Etherton took a parallel route in 1909, over the Quo Quoi Quotchknr. One of Deasy's surveyors fixed some peaks in this neighbourhood in about 1899, as far as I can ascertain. It is a matter for regret that owing to the extreme haste of the chase, twenty two fair stages being covered in eleven days, and the fact that no instruments other than a service prismatic compass were available owing to the absence of transport, it was only possible to take a few bearings from some of the passes, together with rough notes.

A great deal of the ground was covered at night which added to the difficulty of securing any adequate record of the ground, and the need of military precautions against possible ambushes did not help in the matter.

Moreover I have not, at the moment, access to sufficient books to compare previous travellers work in these regions. I hope to remedy this later.

The route itself is a real "thieves road;" no honest man would go that way. It traverses some of the wildest and roughest mountains imaginable, Hanskar and Hunsa not excepted. Most of the country is desolate and uninhabited; a few patches of grass are used in mild summers as grazing ground by the Kirghiz; some portions indeed are practically unknown even to this hardy people.



***A Journey from Tashkurghan.***

The gorge of the Tashkurghan river below Du'dul-Hokarimazar is narrow and precipitous. The path is in many places only a few inches wide, cut into the cliff side hundreds of feet above the torrential river. The passage of this on a dark night was no light matter.

Shindi is a wretched hamlet of 2 or 3 hordes, where humans and cattle sleep together; below this, the gorge is quite impassable, since it is never cold enough for the river to freeze.

The Wacha valley on the other hand is open and pleasing with trees and grass and dotted with fields and houses. A path on which strangers have to be blind-folded, so dizzy is it, runs from Torbush, just below Wacha, to Sherbus on the lower Tashkurghan river. Wacha consists of about a dozen scattered houses. The Aghri Art, a high but easy pass leads to Taghlak Gumbaz in Sarikol. This valley is shown accurately enough on the 1 Million map. The Aghri Art, which is not shown, is eight miles North of peak 18550, bears 80° true from Wacha, and is about 16500 feet high.

The latter part of the journey is shown on the accompanying sketch map. The Ili Su pass has been crossed two or three times by British Officers, though that has not made it any easier. Ili Su itself is a grazing ground; the grass being almost imperceptible in October, the shepherd had moved his flocks to the Zungan (map Zungan) pass.

The north side of the pass is easier, and holds patches of short grass and a little brushwood. The apology for a track is vilely rough with boulders. The hillsides are steep and bare, but burhel are to be seen. Issik Bulak shows signs of occasional cultivation and lower down the valley is thick jungle, difficult to penetrate. The Raskam valley is a mighty spectacle; ten thousand feet of sheer smooth slope confront the traveller descending the valley of Ili Su. The six passes between here and Kulan Aghil (map Urgi) are something to remember; Pilipert and Paik are the worst, with snow cornices and ice sheets on their summits, a desperate business for exhausted ponies. It was strange

to find two humans at M'san; they come up, apparently, in the winter, when the Raskam river is frozen. Yettim Qozi is not fit for a camp, there is no water or fuel and practically no grass. The ridges crossed are all very steep and divided by deep ravines eroded by the ages, and running down toward the Raskam canyon.

The first cultivation was found at Poenak, where there are a few barley fields. Below the Paik pass the valley is grassy, and there is more thick jungle between Issik Bulakning Aghzi and Yagzi (or Yaghz). From the top of the pass there is a magnificent view of several snowy ranges, and a great grassy upland valley, which I took to be the upper portion of Chup.

Below Poenak is easy going and the valley is dotted with fields and hamlets, the same is true of the lower part of the Chup valley. Here too we found a water mill, sheep and ponies. From here onwards to Ak Masjid is the most nebulous portion of the 1/ Million map. Chup is a wide open valley with a flat floor and steep hillsides. In the upper end these are covered with grass. From the summit of the Kara Tash many glaciers and vast snow fields are visible to the south and south west. From Bulun a path runs down the Shakso (map Chukush) to Gusos and across a small side valley to Safsgos, thence over the Shepang to Asgansal (Asgansai as I have seen it spelt). There are pine trees in the upper part of the Shaksu and Pokhpu valleys. This is most rare in Turkestan. The next four passes were crossed in one march of about sixteen hours; I estimate that we ascended 12-13000 feet, and covered over forty inches practically all on foot. This section needs to be properly surveyed; we covered most of it in the dark. Up to the Pokhpu stream the steep hill-sides are not devoid of vegetation or even trees, but the Sakrigu and Ak haram are led up to by long ascents in desolate ravines, and north of the Sakrigu is an interminable winding canyon without the semblance of a path; the Kalisthan valley is barren and

stony whilst the fourth pass is covered with moss, despite name.

From the Kalisthan right on to a few miles at Kok Yar the lack of water (in October) was very trying. Even the few wretched inhabitants of Ak Masjid, (where met the Karakoram-Kilian trade route) carry their brackish drinking water for miles in gourds on donkeys.

From Ak Masjid onward the route is well known except between Odo Bagh and Khan Langar.

This is a level desert but owing to extraordinary energy on the part of the Chinese some hamlets have sprung up, watered and sustained by canals, or rather irrigation ditches. These are more to be found in the northerly part of this plain. The banks of the Yarkand river are dotted with villages embowered in trees. Only man is vile, being cretin, gaitrous and often a leper. We had not much time to study them, however, since we were hurried on the scent of our party, who were surprised in a Sarai in Yarkand the day after their arrival; they had lost seven and a half days to us since leaving Ujadbai.

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## **THE CARE AND PRESERVATION OF LEATHER WORK.**

By

SUMACH.

One of the tasks in which the personal element is most prominent is the cleaning, preserving and polishing of leather work.

This consists of two kinds—there is the “blocked” article like the gaiter or bayonet scabbard which is required to remain stiff, and there is the strap which should be supple.

Some divergence of views exists regarding the suitability of the materials issued officially for the care and preservation of leather work and these are not universally popular. At the same time, their suitability for the purpose can be established on rational grounds, provided that the standard for the appearance of the leather work is similarly fixed.

While it is known that leather is an animal product, this fact is not always appreciated. In the preparation of leather for the market an important operation is stuffing it with grease. It has been found by experiment, that the fibres of leather gain in strength from the absorption of grease, and even when the added grease is removed by artificial means the fibre is still stronger than it was before it was greased. Many of us have cut a stick in the forest and taken it home to season, and have carried out this operation with zeal but without discretion with the result that all the “virtue” is dried out of the wood which becomes brittle.

The first thing therefore to remember is that hot winds, dust, and certain cleaning processes take the “virtue” out of leather and, if it is to retain its life, it must be fed *i.e.* the wastage of grease must be replaced. The analogy of oiling a cricket bat will occur to many.

A second point is that leather can be cleaned with warm water but that hot water will destroy it.

The descriptions of oil or grease which are used to soften and preserve leather are numerous. Mineral oils soften the

### ***Preservation of Leather.***

leather but have a bad after-effect inasmuch as they appear to burn the fibres.

Vegetable oils are of two descriptions—drying and non-drying (between these there are semi-drying oils). The use of the drying oil is equivalent to painting the leather, while some of the non-drying oils darken and stain it. Castor oil is said by some to be deleterious but is largely used in the trade in preparing leather for black boots.

Animal and fish oils are *par excellence* suitable for the treatment of leather. Cod oil which is merely a “grade” of cod-liver oil is the principal one used in the trade; this is made into an “emulsion” and worked into leather from the flesh side.

A very good oil for softening and preserving leather is “Mars oil”. This is believed to be a German preparation and to be the oil obtained when degreasing (removing surplus oil from) skins in the manufacture of chamois leathers.

Thus it is similar to Lanoline or wool fat, which consists of the fat deposited in perspiration on the fleece of sheep. This is extracted either by washing the fleece with soap or by means of a solvent which is subsequently evaporated. The grease thus separated, when purified and formed into an emulsion, becomes “Lanoline”.

Wool fat has a complex chemical composition and is akin to the waxes.

An “official” preparation for the preservation of leather is Tallow—160 parts, Beeswax—96 parts, Camphor—3 parts. This is “dubbing” in a wide sense, being actually a combined dubbing and polish.

This mixture is not to be used for scabbards, buckets and such like, which are of uncurried “blocked” leather which it is not desired to soften. It is laid down that these should be “cleaned” with beeswax. The use of the word “cleaned” is hardly correct. The beeswax is a polish which forms a protective coat on the leather.

Occasional soap sponging is necessary to preserve the grain and they should be very lightly dubbed about half as frequently as straps and such like. The "cleaning" with beeswax is merely incidental to getting a good polish.

Apropos of this the question may be asked why "beeswax" is used in preference to mineral (paraffin) wax which is so much cheaper. The reason is that the difference between the two is analogous to that between household bread and short bread. The beeswax draws out in a fibrous manner and is more adhesive while the paraffin is crystalline and "short"—A good dubbing for preserving and softening leather in store consists of Tallow-5 parts, Cod oil-1 part.

The "Home" regulations prescribe that saddlery and harness in possession is to be laid by in dubbing once in every six months for two or three days. From Friday afternoon to Monday afternoon is suggested as a suitable time with inspection on Saturday to see that the work has been properly done. Whether once in six months is sufficient in India depends upon the locality. There are certainly some places where the desiccating effect of the climate calls for the more frequent treatment of the leather. The excessive use of dubbing discolours harness and saddlery and gives it a "second hand" appearance.

Dubbing spreads more uniformly and penetrates the fibres of the leather, if applied when the leather is damp.

To dub harness or saddlery the whole of the strapping, of which they are comprised, is taken to pieces and cleaned; while they are still damp, the dubbing is applied with a rag, sponge or brush and is then lightly rubbed in. A good way to apply dubbing to such articles as stirrup leathers, reins, and straps, is to hook them on a nail in a wall and pass them through the hand, which holds a small quantity of dubbing. The natural warmth of the hand and the friction melts and forces the dubbing into leather and leaves no uneven caking on the surface. This process also sleeks out creases, kinks etc and assists in making the article supple. The leather work is then put aside and after two or three days, when the dubbing has penetrated, the residue

is rubbed off and the article polished with a cloth or brush. If this job has been well done, there is no danger of grease coming off on the hands or clothes.

Soap used daily on articles in constant use produces mellowness in the leather rather than an outward gloss.

So long as leather remains dry and clean it needs but little attention beyond periodical dubbing, but, when wetted by rain, by the water used to clean it, or by immersion, it becomes hard and stiff, if not softened with some oily or fatty substance *e. g.* dubbing or soap.

To sum up, the essential point in the preservation of leather is to remember that it is a skin which no longer has powers of self-recuperation. It should be fed at reasonable intervals with suitable nourishment; it should not be subjected to violent treatment such as washing with acids or caustic alkalis or with water, which is uncomfortably hot to the elbow. Water should be used sparingly; the article should not be soaked in it. It should not be left in a hot dry wind, put out in the sun or in front of a fire or exposed to the ammonia fumes, which are continually given off in stables. It should however have air, so that it should not become mildewed. In the rains it may be considered advisable to use a fire to dry the air of the harness room, but the leather should not be put where it will get hot.

Now to consider the matter of cleaning—The basis of all cleaning is soap.

As ordinarily understood, soap is the product obtained by boiling the various animal and vegetable fatty matters with one or other of the caustic alkalies in a variety of ways, the product being used for cleansing purposes of all kinds. The alkali reacts with the fatty matter and liberates from it the substance known as glycerine, while the alkali combines with the fatty acids.

Compounds of the fatty acids with bases other than the alkalies are known and some are of use, but by common usage the term soap is restricted to the "soda" and "potash" compounds. The former are the more common and are "hard" soaps, whereas the latter constitute what is known as "soft" soap.

Comparatively recently a new "soap" has been invented. It is believed to be composed of fatty residue, much as is the by-product of the manufacture of margarine, a starch protein-yielding product (linseed, rice, wheat, sawdust) and soda. It is not likely that this will be produced in India for some time.

The action of soap is not well known. It cannot be stated definitely whether the cleansing action is physical, mechanical, or chemical. The alkali undoubtedly contributes to the detergent action, but pure alkali by itself has not the same cleaning effect nor have alkalies present in the form of silicate or aluminate of soda the same action as the alkali of soap.

The property of lathering freely is frequently regarded as a practical test of the quality of soap, but this is a fallacy. If it were true, shaving soap would be the best cleanser. As a matter of fact shaving soap is concocted to produce a good and persistent lather, it frequently has both soda and potash in its composition and gum tragacanth is sometimes added to increase the lasting quality of the leather.

When soap is used with water containing lime (or magnesia and other less important salts), the fatty acid in the soap combines with the lime to form lime soap which is useless and only produces a dirty scum on the water. Until the lime in the water has combined with fatty acid no cleansing action can be expected from the soap. In every 1000 gallons of London water there is sufficient lime to use up from 12 to 15 lbs. of ordinary soap. Most housewives have noticed that soap does not work until the maleficent action of the lime has been overcome.

It may be accepted as a general proposition that soap has an emulsifying action on grease and enables it to be washed or rinsed out. Consideration of this and the fact that rubbing is also frequently necessary to assist the cleansing process will suggest the difficulty in defining clearly the action of soap. A solution of a soap in water is itself of the nature of an emulsion, and the study of emulsions is part of the science of colloid chemistry, which is still in its infancy. When colloids are better understood, we shall know a good deal more about soap.

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At this stage it must be emphasized that the manufacture of soap is essentially a chemical operation. The proportion of caustic soda or caustic potash required to saponify various oils and fats varies with the different fats, and the soap has to be designed in the laboratory, the proportions of the several ingredients being worked out to accord with the characteristics of the material used.

This would explain why a soap maker, who has by a process of trial and error evolved a perfectly satisfactory soap, is non-plussed when, owing to an increase in his outturn or other causes, he has to tap new sources of supply for his raw material.

The variety of materials used in the manufacture of soap is great and includes products which are purchased for Ordnance stocks in other connections *e. g.* tallow, linseed oil. These substances will form the subject of later notes.

It may be of interest to note that oils consist generally of a combination of fatty acid with glycerine, which is called by scientists glycerol to emphasize that, as far as its chemical relations are concerned, it is allied to the alcohols.

For instance, olive oil consists mainly of olein which is a combination of oleic acid with glycerol; similarly tallow is composed of stearin which is stearic acid combined with glycerol. This terminology persists throughout the whole range of these oils and we have crotonic, lauric, palmitic, margaric, pinic, rapic and other acids. This may explain some of the high sounding, proprietary trade names given to very ordinary products.

That soap is the basis of cleaning will be evident from the following analyses of various soaps. The saddle soaps are the ordinary trade articles bought in the shops. Colouring matter and other ingredients in negligible quantities have not been shown. These are only added to make the preparation more elegant and increase the sales.

Soap.		Fatty anhydri- des i. e. dry soap.	combined alkali.	free alkali.	water.	free oil.
Yellow bar	No. 1 ..	66.2	6.8	1.8	23.6	—
"	" No. 2 ..	65.1	6.7	0.8	27.6	—
"	" No. 3 ..	61.6	7.2	—	31.2	—
Saddle	No. 1 ..	17.8	1.5	0.6	76.8	2.3
"	No. 2 ..	19.6	1.9	0.4	72.8	3.6
"	No. 3 ..	17.1	3.2	1.3	75.7	0.3

**Note:—**These are analyses of ordinary trade supplies bought from dealers except yellow bar No. 3, which is the theoretical analysis expected from genuine soap made under average conditions (*i. e.* of a fair average soap.)

It will be observed that the saddle soaps are practically pastes of pure soap of varying consistencies *i. e.* with varying quantities of water.

A feature worthy of note is the presence of a small percentage of free oil. This is reminiscent of advertisements of super-fatted soaps and serves as a warning against the use of soda for cleaning leather.

Incidentally the figures suggest that the man who purchases a tin of saddle soap for a rupee is as often as not buying water at the rate of a rupee per tin.

Anyone who prefers the soap in the form of paste can prepare the latter from the bar. The difficulty experienced is that, ordinarily, attempts to dissolve the soap produce a kind of porridge consisting of jelly and lumps. This is only a question of shredding the soap sufficiently fine before adding any water, and subsequently of working the mixture.

Although the use of acids to clean leather is prohibited, an exception is made in favour of lime-juice which may be employed, judiciously, to remove stains caused by mildew or perspiration.



**Preservation of Leather.**

Soft soap contains an excess of alkali and should be used with discretion. Too liberal an application gives the leather a dark and sodden appearance.

Polishing is at most a matter of elbow grease and a soft cloth. With elbow grease and an old silk handkerchief a superfine polish can be obtained.

The characteristics of beeswax have been referred to. *Heel ball* is a prepared wax. A typical recipe for its preparation is:—

Peeswax.....	4 parts
Suet.....	4 parts
Resin.....	3 parts
Turps.....	3 parts
Melt together and stir in while hot	
Powdered gum.....	1 part
Sugar in fine powder	2 parts
Colouring matter.....	q. s.

“Dragon’s blood”—This and other colouring matters are not of much significance; they are used to improve the appearance of the edges of straps and for re-touching for inspection parades.

The official instructions for the care and preservation of leather work are admirably concise and on broad lines are sufficient, but there is a great variation in the climatic conditions prevailing in different parts of the Empire and the normal procedure may not in all cases be sufficient under abnormal conditions for the first essential, *viz*, to maintain the leather in good condition; but, if the rationale of the treatment is understood, any variation is likely to be on sound lines and not lead to the injury of the leather or needless expense for the individual. While leather articles should be clean their condition is most important. A dry leather without mellowness and with an exceptionally high polish is not workmanlike.

## ***THE VALUE IN THE FIELD OF CLOSE PERSONAL RELATIONS BETWEEN ARTILLERY AND INFANTRY OFFICERS.***

BY MAJOR H. M. BURROWS, 51ST. SIKHS.

Co-operation by Artillery and Infantry has been the subject of discussion at practice Camps, Schools of Instruction, and in the Field for many years.

Such discussions, and lectures upon the same subject, have always brought us closer to mutual understanding, and the lessons learnt from them have been of daily value during the recent great war.

The highest efficiency in this respect has been possible in those theatres, where a state of trench warfare has existed, and where the shortest lengths of front have been held by Infantry battalions.

In France and Flanders a battalion was comparatively compact and distributed in depth. The F. O. O. was to be found living with or near one of the companies in the front, support, or reserve line, whichever gave him the most favourable location for an O. P.

On Gallipoli an additional factor which ensured battery and battalion commanders seeing a good deal of each other, was a lack of depth in the fringe of coast held.

At Anzac and Suvla the front line was nowhere two miles from the beach, in most places much less.

It was therefore easy, owing to the short distances apart at which all concerned lived on these fronts, for Artillery and Infantry Officers to co-operate with greater harmony than elsewhere.

It is the object of these notes to recall some of the ways in which these two arms of the service can work together on more widely extended fronts held in trench warfare, and in open warfare.

As has been suggested already, the basis of successful co-operation is in mutual personal knowledge.

Unless this is cultivated by officers of both branches of the service, the danger arises of battery officers shooting a programme without any knowledge of the part being played by the troops they are assisting, and of Infantry officers playing their part only knowing that certain indefinitely located guns are going to support them, but exactly how and when and by whom they are going to be fired they do not know.

That this is a very real danger is apparent.

An elementary knowledge of gunnery guides us to realize that the "50% Zone" must be concentrated on the enemy.

The danger zone is four times as great as the 50% zone.

In attacks and in trench warfare where no-mans land is narrow, some shells must fall amongst our own infantry sooner or later if full effect on the enemy is to be obtained.

It is only fair to the originator of this fire, the Battery Commander, that he should have first hand information from the infantry, before the fight, of what they are going to do and where they are going, and both during and after the operation he should be told the result of his own efforts.

He may be able to modify his programme in small details, to appreciate particulars of the ground which the infantry know and which are not shown on the map, and afterwards to see the stages which they have reached by recognising particular companies, their formation, and even individuals amongst them.

He wishes the infantry to have the best support possible, to give them confidence in their enterprise, and to obtain their assurance afterwards that he has done what was required, or if not, how he can improve things next time.

Similarly the Battalion Commander and his officers cannot hope to approach their task with confidence unless they know from their own supporting artillery where and when they are going to shoot.

Personal knowledge of their brother gunner officers, and of their goodwill and intentions, will dispel the doubt which arises in the minds of infantry officers when support seems late or inadequate, or casualties occur from our own shells.

It is therefore necessary that Battalion and Battery Commanders should know each other. These officers at least should be well acquainted.

To this end the brigade group system is excellent, whereby the same Artillery Brigade always supports the same Infantry Brigade. But it should not be impossible for all nine Battery Commanders to know all the twelve Infantry C. Os. in a Division.

A distribution down to Battalion and Battery Commanders of a weekly location list of Units, and a fortnightly "Order of Battle" by the General Staff Branch of the Division, should materially assist those who should make the acquaintance of their neighbours.

It must be admitted that whereas it is quite normal to see Battery Commanders calling upon Infantry C. Os. as soon as the latter's Battalion has come under the former's support, it is seldom that a return visit is paid.

This defect should be corrected, as the cone of fire from guns can only be appreciated by seeing the Battery position and the arc covered from the O. P.

A great deal closer mutual knowledge is required than this.

Infantry Officers should take every opportunity of teaching their observers to recognise Gunner Officers who support them.

It is of the greatest assistance in an open fight if the attention of Officers is called to the proximity of others.

Often a favourable opportunity may thus arise for the Infantry Officer to give a reconnoitring Artillery Officer information which will assist him to bring his guns into action profitably.

It has been found that the attachment of Infantry Officers for a few days at a time in turn to one of their supporting Batteries has brought good results.

This should be done whenever Officers can be spared.

The function of the F. O. O. becomes increasingly difficult when his Battery is supporting Infantry disposed on a widely

extended front. Especially is this so in difficult country such as the hilly districts of Palestine and Macedonia.

The O. Ps. giving the best field of view are not always in the front line. As often as not they are to be found on some high hill as far back as Battalion Headquarters or further still.

Should the F. O. O. find that he is located in the front line, he must avoid staying in his O. P. all day. He must leave the N. C. O. in charge occasionally and visit the Company Commanders and Infantry Officers, and encourage them to pass their information to him. He should mess with them if possible, unless he is messing at Battalion H. Q.

Much movement in the front line during daylight is to be deprecated as a rule.

A Company Commander, however, has a fund of information with regard to the enemy's movements, the position of his Machine Guns, Anti-Aircraft Guns, and Automatic Rifles, and has a very good idea of the approximate position of enemy Batteries which have been active.

A Gunner Officer should remember that besides his own eyes, there are many pairs of eyes amongst the Infantry day posts watching the same ground as he does, and their owners may be able to give him details which alone he may have overlooked.

Many Infantry Officers do not think that their information can be of value, as they are not sure how to describe what they have seen. Men can usually point pretty accurately in the direction where they have noticed movement, or from which Batteries have fired. By visiting Day Groups and Posts during the twilight of dawn and dusk much corroborative evidence can be collected.

The following methods of reporting information are simple :—

1. If an actual co-ordinate cannot be determined for what it is desired to locate, it should not be difficult to estimate the square on the Map.
2. Give the co-ordinate of your observation point and .

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the true bearing and estimated range therefrom to the point you wish to describe.

3. The line of fire of an enemy Battery can be given by watching the general line on which a series of shells is falling. The true bearing across the line of shell-craters can be reported.
4. The position of any dud should be given to the F.O.O.
5. It is easy to recognise whether the hostile fire has been H. E. or Shrapnel. Examination of fuzes or pieces of shell are a guide to the calibre of the guns that have been firing.

By comparing notes daily Infantry and Artillery officers can collect much evidence with regard to the position of enemy Batteries which will be of use for comparison with the results obtained by the Sound Ranging Section, Balloon, and Aeroplane Observations.

Much of this information becomes available through the medium of Battalion, Brigade, and Divisional Intelligence Officers. But as this has to be collated, and reaches Artillery Units through the C. R. A. it is not available for at least 24 hours after events have happened, and is not as detailed as the original local information can be.

It is at night that the very best results can be obtained by co-operation on part of the F. O. Os. and Infantry Regimental Officers.

If these Officers are in close communication, any abnormal movement of the enemy such as large working parties, strong patrols, reliefs, or concentration for attack can be dealt with immediately it is reported by patrols and listening posts.

A very simple arrangement for this purpose was made by a C. O. and Battery Commander on Gallipoli.

A	B	C
D	E	F
G	H	J

Turkish Front Line

British Front 1500 yards.

Each Company Commander and F. O. O. had a small plan, as above, an enlargement from the Map of the ground in front of the Battalion.

A Signal or written message, the text of which read:—

“Working Party E.” was found quite sufficient information to enable the Guns to disperse the enemy party at night.

On these plans all well defined enemy trenches, machine gun and trench mortar emplacements, dug-outs, dumps, and places where enemy parties are at work, can be kept up to date. Infantry units should keep up a Company log book for this purpose.

The greatest difficulties arise when the artillery O. Ps. are further back in hilly country.

Under these circumstances if distances are too great or it is undesirable for B. Cs. and F. O. Os. to visit the front line, the Battalion Intelligence Officer must act as liaison, and copies of Intelligence Summaries and O. P. reports must be exchanged.

Barrages and “Night Lines” are arranged and communicated to all concerned, which can be called for to repel a hostile advance either by telephone message or Very Light Signals.

This, however, is not all the support which Infantry requires at night.

When a Commander sets out to secure command of No-man’s Land he makes great demands upon his men. He asks his fighting patrols to lie up and capture enemy patrols, and if met suddenly, to attack them. He asks his reconnoitring patrols to go up to the enemy’s wire, stay there and find out what they are doing.

Under these circumstances he must be in a position to call for Artillery support to extricate his patrols in emergency. This he can only do by being in personal touch with the F./O. O.

With regard to small raids it is clearly understood that secrecy is essential to success. The preliminary arrangements should be communicated to as few as possible.

When, however, the initial plans have been formed, the Infantry to carry out the raid is put into practice on ground marked out with tape to represent the Raid Area.

It is then that Artillery Officers who are to co-operate, must be put in touch, not only with the C. O. of the Battalion in question, but also with the actual Officers who are going to do the raid.

A clear understanding of the part each is going to play in the programme is essential.

Confidence at the zero hour can only be hoped for if all concerned are thoroughly cognisant of what their partners are going to do.

In the event of failure mutual disappointment can be minimised thereby. Satisfactory results cannot be anticipated, unless the principal actors are convinced that all adequate arrangements have been made.

It may be well to mention in passing that the synchronisation of watches is usually supervised by the Infantry Brigade Major.

One has witnessed the seconds counted over and checked back two or three times by various representatives of the Units about to take part in a raid, yet after this mistakes of some minutes have been made at the zero hour. Great importance should always be paid to this detail.

Wire cutting has proved a serious bone of contention.

C. Os. are responsible for reporting that the Artillery have cut the wire sufficiently. Delay is often caused by the Battery Commander considering that the job is done, and the C. O. later has not been satisfied.

Delay militates against the hope of obtaining surprise. The best chance of success is for the Battalion Commander or an Officer deputed by him to go to the O. P. and remain there with the B. C. or F. O. O. until the desired result is obtained.

It is possibly not always appreciated that the Guns in an advance normally come forward on the original line of fire to new positions.

F. O. Os. are sent forward for attachment to the Headquarters of the Infantry Units their Batteries are going to support. Infantry Messes must always be prepared to make such Artillery Officers welcome. Artillery Staff Officers should be



on the lookout for tactical points where a number of F. O. Os. will be required, and warn the Infantry Unit concerned so that they can legislate for feeding four or five additional mouths.

It should be quite easy for Infantry Officers, whose observers are looking out for Gunner Officers, to render them assistance by making them *au fait* with the situation as soon as they see them whether they are B. Cs. riding forward, F. O. Os., or Officers sent ahead for liaison.

Such Officers are always accompanied by Signallers if not telephones.

Telephonic communication can be established in a very short time, as soon as a suitable Battery position has been selected.

By welcoming the arrival of an Artillery Officer, Infantry secure the best assistance for their own ends,

I have said no word about withdrawals.

Schemes are always prepared for this and Company Commanders should be sent to walk over the route by which they would take their Companies to the second line, if ordered to do so, not otherwise.

The C. O. and B. C. should thoroughly discuss the best method of covering such a withdrawal with shell fire.

To sum up—our greatest danger is, that unless all officers are mindful of the value of studying the means of keeping in close touch with each other, we develop into two arms, working with one end in view, but quite separately, and without the sympathy which can keep us going as one machine.

• Victories are not won without the use of bayonets and the men who run the Guns will get the Infantry to close quarters with the enemy by counter Battery work, standing barrages on reserves, and creeping barrages to break down the resistance to be met, much more easily if mutual knowledge, understanding, and trust prevail.

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## **INSTRUCTIONAL METHODS IN A SCOUT TRAINING SQUADRON OF THE ROYAL AIR FORCE.**

BY

LIEUT H. V. GEARY M. C. 2-69TH PUNJABIS.

It is proposed, in the following article, to give, from the instructor's point of view, a brief sketch of the instructional methods prevailing in the scout Training Squadrons of the Royal Air Force, by which a novice, previously unversed in either the theory or the practice of flying, is developed into a war pilot or instructor.

The choice of the personnel who eventually come to him to learn to fly, is not in the hands of the instructor himself. He is provided with his material by the R. A. F. Selection Boards in London. There are no hard and fast rules to guide these Boards in discriminating between those likely and those unlikely to become efficient pilots. The average officer or cadet who wishes to learn to fly must first pass the Selection Boards—one decides whether, from his appearance and general record, he will prove a good investment; the other medically examines him to see if his constitution and nerves are fit to stand the strain. The latter examination is so thorough that it is unlikely that any candidate will creep in, unless he possesses health and nervous energy of a high order.

The pupil's next two months are spent at a School of Military Aeronautics—Reading or Oxford—where he is given instruction in the theory of flight, aeroplane and engine construction and running, signalling, and aerial navigation. A whole volume could easily be written on the subject of this preliminary training alone, but, having been a flying instructor myself it is of the actual air work that I am most competent to write. Yet it is necessary that some elementary idea of the theory of flight and aeroplane design should be given in order that non-flying readers may grasp the scheme of instruction which is outlined below. Flying, perhaps, possesses more fascination for the layman (if I may use the word) than for the pilot himself. There is latent in everyone, even when they have passed their youth, the spirit of the

## **Scout Training.**

boy whose dearest wish at the age of eight is to drive the Scotch express; but even driving a Scotch express may be very prosaic when you know how.

Flying is made possible by the lifting reaction set up when an inclined plane is pulled rapidly through the air. We knew, long before aeroplanes came actually into being, that flying was possible, but the problem was to discover a light yet powerful engine capable of providing the necessary thrust through the air. Some scientists strove to imitate Nature, and invent wings which would flap up and down after the manner of birds; others, quite rightly, saw that a considerable volume of energy would be wasted on the the upward flap, and devoted their researches towards the rotary propeller. Captain C. Fleming Williams, lecturer on Aeronautics at the School of Military Aeronautics, Reading, once said during a lecture (to us) that if Nature could have provided birds with a small petrol engine and a propeller she would have done so. Most modern aeronautical engineers are inclined to agree that he was right.

Having obtained a light and powerful power-unit capable of pulling our planes through the air at a high speed, flying becomes possible. The next problem is to make our aeroplane stable. It must be stable in three ways:—laterally, longitudinally, and directionally. That is, it must, firstly, not dip from side to side; secondly, it must not dip or elevate its nose; and, thirdly, it must not turn its nose to the right or left, unless the pilot wishes it to do any of these things. These requirements are provided for by:—

- (1) The setting of the planes at an angle slightly above the horizontal, so that when one side drops owing to air bumps the lift on the other side is automatically decreased in proportion.
- (2) The fitting and adjustment of a tail plane so that the centres of gravity and lift are coincident.
- (3) The provision of "keel-surface" as in a ship.

The means of control are closely allied with these arrangements for securing stability. For lateral control ailerons or hinged flaps are provided, wired to the pilot's control lever, or

"joystick", so that on the joystick being pushed over to the left the aileron on that side is elevated, and the corresponding one on the right depressed, giving decreased lift on the left and increased lift on the other; hence the machine banks over to the left. For longitudinal control an elevator is fitted to the tail-plane, also wired-up to the joystick, so that on the latter being pulled back the elevator tips up—result, less lift to the tail plane, and up goes the nose. To depress the nose the stick is pushed forward. For directional control a rudder is fitted, the slipstream, or back-wash caused by the propeller thrusting the machine through the air, acting on it in the same way as in a ship: *e. g.* if the rudder-bar, operated by the pilot's feet, is pushed to the left, the rudder swings over to the left, and the machine tends to change direction left. All this has to be well assimilated by the pupil.

The pupil, having eventually mastered these principles, leaves the S. of M. A. and joins a Training Squadron, where he meets real flying machines for the first time. The instructional machine in almost universal use at Home is the Avro biplane, with a Monosoupape rotary engine, developing 100 h. p. at 1200 revs. per minute. It seats two, and is fitted with a complete set of machine and engine controls in each seat. After waiting for a vacancy in a flying squad, during which time he does ground duties such as gunnery and signaling, he is detailed to a certain instructor's squad, and commences his training in earnest. These instructors are either pilots returned from overseas for a spell of recuperative Home service, or pupils above the average who have passed out and been retained for a period of service as instructors prior to going overseas themselves. Their flying ability must be such that their pupils have every confidence in them, as there is nothing more unenviable than going into the air with a man whom one distrusts. If an instructor is obviously incompetent he is given his *conge* very quickly. The R. A. F. in war training has no time to waste.

The pupil eventually prepares to go up for his first flight. He straps a helmet, fitted with telephone receivers, tightly

over his head and ears, dons his gloves, and is strapped into the machine. A mouthpiece is fitted in front of each seat, and thus perfect communication is possible between pupil and instructor. The first flight is quiet straight flying, with gentle turns; in the second the instructor loops, spins, rolls, and generally "chucks the bus about," and by the third or fourth trip the pupil is beginning to get accustomed to the air, and his serious instruction begins.

The first thing to instil into his mind is confidence in the machine, and in his power to control it. He is taught that flight and control are only possible when the machine is being thrust through the air at a sufficient minimum designed speed to create the necessary lift and steerage way; and that without this minimum speed, called "flying speed," the machine ceases to be a flying machine, and becomes merely a heavy mass of wood and metal susceptible to the laws of gravity. If flying speed is lost, say by pulling the stick back and jerking the nose up into the air, it can only be regained by a nose dive, during which the machine eventually acquires a sufficient momentum through the air to enable flying speed to be once more regained, when control becomes once more possible. He learns that he can lose flying speed, or "stall," as it is called, with impunity, so long as he has sufficient height in which to nose-dive, and that he can perform with safety all manoeuvres requiring loss of flying speed, such as stalling, looping, etc., if only he is sufficiently high up; also that if the engine is shut off he must maintain flying speed by putting his nose down and gliding. His confidence in machine and instructor increases, and he begins to take a keen interest in getting into the air as often as he can, and learning all there is to learn about his new element.

His first real lesson arrives when the instructor shouts down the, phone, and tells him to take control. Rather nervously he puts his feet on the rudderbar and right hand on the joystick, while the instructor puts up his hands on the centre-section struts to show him that he is now flying the machine. He learns that the controls are much simpler than in a car or a

sea :—at sea, if he wants to go to starboard, he has to port his helm : here, if he wants to go to the right, he puts on right rudder, if to climb, he pulls the nose of the machine up with the stick. His first task is to fly straight and level, and he finds even this difficult at first. He has to correct laterally, longitudinally and directionally at the same time, but this soon becomes instinctive. Then he is taught how to turn ; he learns that rudder alone will not turn the machine, but must be combined with "bank", and soon he performs quite decent turns both with engine on and on the glide. Then taking-off and landing instruction begins. His first landings make his instructor shudder,—he either wants to fly straight into the ground, or to land about 10 feet above it. However, he masters even this at last, and then goes up for some preparatory flights with his instructor, during which he does everything—starts up the engine, takes off, turns in all directions, shuts off, glides down and lands.

He is now ready for his first solo flight, and on a nice calm day his instructor takes him up for a last flight, lands him in the middle of the aerodrome, gives him a few cheery words of advice, and sends him off alone. It is a great moment in the pupil's life. He perhaps swings a bit getting off, but soon corrects this, and climbs straight up to about 2000 feet, where he gingerly attempts his first turn, his instructor watching him eagerly and anxiously until he has safely landed. A first solo well done means much to a budding pilot, and increases his confidence by about 200%.

After this he does many flights alone, sandwiched in with additional periods of instruction in vertical turns, stunt flying, and practising forced landings in case his engine ever fails. He flies further afield, varying the monotony by long cross-country flights, and occasionally taking up a Lewis gun and a drum of ammunition to see what sort of pattern he can make on the ground target in the corner of the aerodrome. He is then taken up for a few last flights by his instructor, and shown how to land on one wheel and do all manner of weird sideslips which may save his life in the event of engine failure. He bids fare-

well to the Avro, and is sent off on a scout machine in which, although he has not flown the type before, he acquits himself well, as he now flies more or less by instinct. He can then put up his "wings" and go North to an aerial fighting School, or, if he is to become an instructor, he puts in a fortnight's course at the Special School of Flying, Gosport, or one of its branches—the Staff Colleges of the flying world.

I know of no other branch of the Service in which the instructor is rewarded so readily by the early results of his work. In an infantry regiment the standard of training reached by the men over whom one has spent so much time and trouble is not immediately apparent, save in their extra smartness on parade and manoeuvres; but in the Royal Air Force as one gradually watches a pupil, as he day by day accommodates himself to a different element and masters all the technicalities of flying, until he blossoms out into a steady and reliable pilot, one's reward is quickly achieved, and one can follow in the communication the progress overseas of those who first took the air under one's own care and guidance, with a happy consciousness that part of their glory is reflected on oneself. One realises then that all the sins and blunders of their novitiate are atoned for.

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## ***FUTURE ORGANIZATION & TRAINING OF THE SAPPERS & MINERS.***

BY

MAJOR C. F. STOEHR R. E.

While the record of the Sappers and Miners in the war has shown that their peace time organization and training were fundamentally sound, a test so wide and severe, extending over France, East Africa, Mesopotamia, Egypt and Palestine, is certain to find out any weak points which may exist.

The object of this article is to point out some defects and to suggest some remedies with a view to the subject being widely considered by R. E. Officers in India, so that ideas carefully thought out beforehand may be available, when the matter comes up for decision.

That the training of the individual sapper needs little or no alteration is proved by the fact, that the qualifications which the fully trained sapper should have are the same now (see Annexure to I. A. O. 864 of 1918) as they were before the war.

The main points, to which attention requires to be directed appear to be:—

1. The absence of an efficient reserve. As this is a defect common to the whole Indian Army, it will not be mentioned further here.

2. Scarcity of Officers who know anything of a Sapper and Miner Company. With this may be coupled lack of sufficient technical engineering knowledge on the part of S. & M. Officers; also the probability, that the C. R. E. of a Division will either have little or no knowledge of the units under him or will not be in a position to deal as efficiently as he might with the engineering problems, which he will have to solve.

3. Failure of the staff to get the best use out of the S. & M. Companies.

These two defects may be summed up as lack of touch between S. & M. and other R. E. Officers and between S. & M. and the Staff.

4. Necessity of reconsidering the data on which the transport and equipment of a Company are based.



***Sappers and Miners.***

Under the present system of officering the S. & M. it may easily happen that an officer goes to them shortly after his first arrival in India and stays till he becomes a Major, and he may even stay throughout his service. The opportunities in Sappers and Miners of doing any Engineering except temporary Field Works are few, and long uninterrupted service in them must, it would appear, lead to lack of sufficient knowledge of semi-permanent work, such, for instance, as piped water supply, which under modern conditions will have to be undertaken by Field Coys to a greater degree than in the past.

On a Company being mobilised two (perhaps in future three) officers from Military or Public Works are added to the peace Establishment of two. Probably these Officers know nothing about a Sapper and Miner Company, for an Officer who goes to the Public Works or Survey Department rarely leaves it, and the same is true of an Officer who, after two or three years, is still in the Military Works Service. Yet if the Company Commander is hit the Command is quite likely to devolve on one of them.

It is suggested that to remedy this every Officer should spend his first year in India in Military Works and his second year in Sappers and Miners.

The first year would give a knowledge of Military Works routine which would be of the greatest service in the event of his going into M. W. S. later on, when his rank requires that responsible work be given at once. He would also, before joining S. & M., learn Hindustani in a post, where it is not essential. The second year would give sufficient knowledge of S. & M. to enable him to drop into his place at once, if attached later on to a mobilised Sapper Company.

With the years spent at Chatham before coming to India he will now have four years service, and it is suggested that the Officer who wishes to make his career with Sappers & Miners should do another five years with them, and should then do other work, preferably Military Works on the frontier, for two years or until appointed to command a Company.

Many Officers' careers with S. & M. end when their Company Command ends on promotion to Major, but in any case it would probably be a good thing for a further two years in M.W.S. to precede appointment to be Superintendent of Park or of instruction in S. & M.

In this way, without undue interference with existing conditions, every R. E. Officer will be sufficiently at home with Works and Sappers and Miners to be immediately useful in either. S.&M. Officers will have higher technical knowledge, and the C. R. E. of a Division will be assured of knowing something of the troops under his command.

Before the war each of the three Corps of Sappers and Miners had four Companies at Headquarters and two at outstations, with the result that only 10 stations, including a local Company at Mandalay and sections at Adu and Chittal, had Sappers, while the 3rd (Lahore), 5th (Mhow) and 8th (Lucknow) Divisions had no Field Companies at all in their areas. Unfamiliarity with their constitution and employment was bound to be the result, and it is not surprising, if it has sometimes not been realised by Staff Officers on the one hand, that a Field Company is not the same as a Works Company and will lose efficiency if kept for long periods on Works jobs without any opportunity for military training, and, on the other hand, that Sapper Companies should never be used as Infantry so long as Infantry are available; early in the war, particularly, it was not realised, that a full trained sapper was trained and very often skilled in some trade and that, as very nearly all sappers are taken from the plough, and training in a handicraft cannot be rushed, it takes a minimum of two years under the most favourable conditions to produce a fully trained sapper and considerably longer to produce a skilled artificer. Losses, especially in skilled men, are therefore irreplaceable for years except by denuding other Companies, and the heavy and sometimes unnecessary losses suffered early in the war have been the main difficulty in the way of forming the many new Companies required later; in many cases these have been furnished with a bare minimum of trained men to form a nucleus for workshops training.

***Sappers and Miners.***

In the British Army each Company whether Field, Works, Searchlight, or whatever it may be, is an independent unit, with no intermediate unit between it and the whole Corps of Royal Engineers; there is no equivalent to the Indian Sapper and Miner Corps.

These Corps all have an existence of over a century, they have proved their efficiency, and any idea of their abolition for the sake of uniformity with the British Army is strongly to be deprecated. Apart from any other reason they correspond to a Regiment, whose *Espirit de Corps* is the highest motive to which, in the absence of patriotism, appeal can be made in the Indian Army. But closer contact than hitherto with other arms is required, and it is therefore suggested, that in future every Division should have stationed within its area the Field Companies allotted to it on Mobilization. As the war has shewn that three companies per Division are required this would leave three Field Companies at Headquarters and, with the present number of Divisions, give each Corps six Companies at outstations. From a Regimental point of view such a high proportion of Companies away from Headquarters may be regrettable, but some means must be found of attaining the necessary closer contact with other arms. Possibly only two Companies with a Division might be permanently in the Divisional Area, the third being at Headquarters till mobilisation. Under whom should the detached Companies work? At present their technical training is under the C. R. E., who not only is exceedingly busy, but, as he is too senior to accompany the Division on service, is under a temptation to employ a Company with a view primarily to push on his works irrespective of their value in fitting the Unit for War. The solution suggested is that the Officer who will become C. R. E. if the Division is mobilised, usually the senior A. C. R. E. in the Division, should be responsible for the technical employment of the Companies, his other work being, if necessary, lightened. Close supervision of the Companies is unnecessary; the important point is to ensure, that the amount and nature of the work imposed upon them is the best suited to further their training.

For some years individual training will be most urgently required and workshop training must take first place, but Fieldworks and education, particularly of N. C. Os., will require much attention, and musketry and tactics, though less important, must not be forgotten.

In some trades, such as sawing, brickmaking, painting, only a brief training is required before useful work can be done, and in such cases the work imposed might well consist in the men concerned doing work for different departments. In other trades, such as carpenters and smiths, progressive training is necessary for perhaps a year or more and only men already fairly skilled will benefit by being put on outside work.

During these first two or three years all tasks involving a large amount of unskilled work, such as roadmaking, should be avoided as far as possible. It is necessary to lay stress on this point, for it may not be clear at first sight how all the men of a Company can be kept continuously and usefully employed by its C.O., but experience proves that, after filling the workshops with about half the Company, the remaining men cannot be spared for much outside work and still allow other forms of training and line repairs to be carried on. As soon, however, as normal conditions are re-established *i. e.* when every man in a Company is up to the Official standard in Fieldworks and has passed at least his second rate trade test, a large part of the technical training of a Company should consist of comparatively large works which will exercise the organizing and engineering abilities of the Officers, such as the construction of a bridge or a bungalow or of a bridle track through difficult country. Of course the greater the proportion of skilled labour that the work requires the better. An average of three months a year might be advantageously spent on such work. Work of this nature is even more desirable for the Companies at Corps Headquarters, for it is the best opportunity a Company Commander has of getting to know his men, and more work might be done in this direction than was the case before the War. Contract work should be encouraged by abolishing the liabilities of Units to pay pensions to men who suffer accidents; though the actual risk may be small, the uncertainty is a great deterrent.

***Sappers and Miners.***

The utilization of Engineers on manoeuvres always has presented and will present great difficulties partly because there is not sufficient time for their want to be seriously felt or for any important work to be carried out, partly because in war a considerable proportion of Engineer work consists of arranging for and supervising Infantry working parties, which are rarely, if ever, available at manoeuvres, and partly because work on service generally involves the use of material, and often the demolition or disfigurement of existing objects. In future these difficulties will tend to be greater, for it has been found that Infantry must do much trench making, wiring etc. which was formerly supposed to be too difficult for them, and the work of the Engineer has consequently become more technical. The difficulties cannot altogether be overcome, but they may be lessened by a more widespread distribution of Sapper Companies and their association with manoeuvres, wherever possible, by imagination of the part of the staff and the association of an Engineer Officer when planning manoeuvres, and by the willingness of the Engineer Officer to make himself unpopular when necessary, in order to ensure that his part is not overlooked. Part of battalion, and often of brigade training should include work which will need the co-operation of Sappers, these being either split up among the Infantry or undertaking special tasks of their own (vide S. S. 145 'Notes on Engineer work during Operations' Sections 3 and 10). Perhaps the former would be best with battalion and the latter with brigade training.

The question of Company equipment is under consideration and is mainly internal. There are, however, one or two points of general interest. British Field Companies are equipped with wheeled transport, and are rarely likely to fight in a Country where wheels cannot be used. Sapper and Miner Companies may have to use wheeled, pack, or even, as on the N. E. Frontier, coolie transport. Hitherto their equipment has been based on the use of pack transport on the N. W. Frontier and this greatly limits the weights that can be taken, and results in the cutting out of many necessary tools. It is a question whether, in view of the

greater weight of equipment of all sorts which now accompanies an Army, and the enormous development of motor transport, operations on the N. W. Frontier will not in future have a wheeled road for at least their main line of communication, and whether a large proportion of the equipment of Sapper and Miner Company should not in future be carried on carts. This is, of course, a strategical question which can only be answered by Army Headquarters; but until it is answered in detail, problems of equipment cannot be satisfactorily solved.

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## **THE TACTICAL HANDLING OF LIGHT TRENCH MORTARS.**

LECTURE BY LIEUT. R. A. BARKER. 4/3RD GURKHA RIFLES.

In the British Army, Trench Mortars are divided into three classes—Heavy, Medium and Light. **Description of Trench Mortars.**

The first of these are officered and manned entirely by R. G. A., and are of the nature of a heavy Howitzer the projectile weighing 150 lbs and containing 50 lbs of H. E. The Gun is known as the 9 45" Trench Mortar, and has a range of about 2700 yards.

The next class—the medium mortars—are manned by artillery men, but the officers are, or were, drawn from Infantry units as well.

The old "Football" or "Plumpudding" bombs, fired by the 1½" or 2" (60 lbs) Mortars are now obsolete, and their place has been taken by the 6" Newton Trench Mortar firing a 52 lb. bomb up to 2000 yards. This gun is fired on the Stokes principle.

Lastly there are the Stokes Light Trench Mortars. These fire a bomb weighing 10 lbs. 11 oz. up to 800 yds. They are, however, capable of firing 25 rounds per minute, and weigh only 104 lbs compared to the 400 lbs of the 6" Newton, or 34 cwt. of the 9 45". They are therefore the only guns adapted to open or semi open Warfare, and consequently the only ones to be considered in this lecture.

Stokes Mortar batteries consist of eight guns manned ordinarily by 50 men under the command of a **Organization of a battery.**

Captain and three Subalterns. On the eve of an action however, it is usual to bring the battery up to 100% over strength. The team for one gun consists of an N. C. O. and four men, by whom the various parts of the gun are carried. Ammunition is carried by the additional personnel or by special carrying parties. The three main parts of the gun *viz* :—the base plate, the barrel, and the elevating stand, are carried by Nos. 1, 2 and 3 respectively. The battery forms part of the Brigade Troops, and is directly under the orders of the

G. O. C. an Infantry Brigade, in this respect differing from Medium and Heavy batteries who form part of the Divisional Artillery, and act under a Divisional Trench Mortar Officer, who is attached to the Staff of the C. R. A.

Trench Mortars are, of course, a new weapon, and in consequence their Tactical use is based on experience gained during the present war—chiefly under the conditions of Trench or Semi-open warfare. The following remarks will attempt to embody some of the experience gained in France up to the winter of 1917-18.

I will commence with the *Attack*, which, for this purpose I have divided into four stages. Firstly, **The Attack.** the question of Organization prior to the Attack; secondly, that of dealing with local opposition encountered during the first advance; thirdly, the action to be taken on reaching open country; beyond and lastly, the question of consolidating the position won.

All questions of Light Trench Mortar tactics are influenced by the high rate of fire capable of being maintained by the Stokes gun, which is at once its greatest asset, and reacting as it does on the rate of Ammunition supply, its greatest difficulty. It is thus very unusual to send forward all the guns with the assaulting battalions. As a rule not more than two guns will be advanced with each assaulting battalion, the remainder being retained as a reserve. This will be decided by the G. O. C. Bde., but a large number of other problems still face the Battery Commander. He must decide on the Route of advance to be adopted by his gun teams and ammunition carriers. He must carry out a thorough reconnaissance of "No-Man's Land" with a view to cover from Machine Gun fire during his advance and from Artillery fire, once his position has been reached. For this purpose study of Trench Maps and Aeroplane Photographs will be necessary, together with skill in reading the latter. He must also decide on what formation to adopt—whether to attempt concealment by adopting the same formation as the infantry, or



**Light Trench Mortars.**

whether to advance in single file, as the formation best suited to controlling the men under peculiar conditions of trench to trench attack. Then there is the important question of the selection of a Rendezvous for Ammunition Carriers. A prominent object must be chosen or they may never reach it; but on the other hand such an objective is sure to be heavily shelled. A factory chimney, for example, might make an excellent rendezvous, were it not for the fact that under bombardment it may cease to exist. The result is that some place near, but not at, a fairly prominent and substantial feature which could be pointed out from the starting point, would be selected. Arrangements must also be made for guides to accompany the guns, with instructions to proceed to the rendezvous and guide Ammunition Carriers, on their arrival, back to the Gun positions. The existence of this Rendezvous should also be made known to Infantry Commanders, and thus provide a means of regaining touch with each other.

It should also be impressed on the men that a gun at the right place at the right time, even provided with only a few rounds of ammunition, may be of invaluable aid to the progress of the attack, and also that the value of a gun consists of the safe arrival of *all* its component parts; and consequently that a man carrying ammunition must sacrifice his load to take up that of any man carrying a part of a gun, who may become a casualty. Finally, a Battery Commander must ensure that, as far as possible, all men who go over with the assaulting battalions are as fresh as possible. For instance, they should be required to take no part in the preliminary bombardment. Otherwise, if the going is bad or the objective distant, his guns and ammunition will never reach their objective.

So much for preliminary arrangements. Now comes the question of the local opposition which is sure to be encountered at some points during the first Advance. Here Trench Mortars handled with a proper offensive spirit have been found most efficacious.

(b) **The 1st Advance.**

It must be thoroughly impressed on the men that anything holding up our advance must be engaged at once, without waiting for orders. A few well directed rounds, rapidly delivered without delay, may accomplish what may later only be done after a heavy bombardment and loss of life.

Men should also be instructed to look out for any opportunities to assist attacks to their flanks, but at the same time to be careful not to hold up our own attack by putting up a barrage on a target, which in itself would not have proved a serious obstacle.

On reaching open country beyond, the same offensive spirit  
(c.) must be maintained, under circumstances  
Open Ground. of increased difficulty. Attempted counter-attacks are to be expected, and any bodies of men attempting to reorganize will have to be dealt with. Strong points will also be encountered, necessitating specially organized attacks.

As by this time touch with the Artillery may be lost, Trench Mortars should be relied on to give valuable assistance. Consequently guns should be advanced towards such features as earthworks, villages, or woods, which may be likely to prove centres of resistance. The ammunition supply at this stage is also likely to prove a difficulty and the value of preliminary organization will be put to the test. Moving and disappearing targets will arise, necessitating a high degree of training on the part of the personnel in bringing guns rapidly into action and effective fire immediately to bear.

It may here also be noted that Light Trench Mortars are best used in conjunction with Lewis Guns. With sixteen Lewis Guns to each Battalion, it should not be impossible for a Battalion commander to allot one Gun to each of the Trench Mortars accompanying his Battalion. In this way the Trench Mortars will be able to search dead ground, and scatter its occupants, who will then present a target to the Lewis Guns. Conversely, a moving body of men driven into cover by Lewis Gun fire can there be dealt with by the trench Mortar.

**Light Trench Mortars.**

We will now assume that the attack has reached its final objective, and the work of consolidation begun. Hitherto the Guns have been covering the advance of the Infantry from positions one or two hundred yards in rear. They will now move up into the front line, and dig in. Ammunition and reserve Guns should now be moving up. Meanwhile the Battery Commander should be looking for likely targets with a view to hostile counter-attacks. He should pay particular attention to any dead ground likely to be used for reorganization or as a "jumping-off" place. He should arrange to give covering fire to our own bombing blocks or strong points, take careful ranges, and construct Range Cards etc. For this purpose liaison with the Infantry and Machine Gunners must be established.

Some arrangements should also be made for the event of a complete break through. It will be obvious that guns and ammunition cannot be carried by hand for more than a limited distance, and their transport by other means must be arranged. Positions for ammunition dumps, well forward, should be prearranged with the Ammunition Column. Lastly, it will be well if ammunition Carriers, returning to the Dump to replenish their supply, are provided with some sort of badge, which will free them from the attentions of the Military Police.

Hitherto we have dealt solely with the organized attack, designed to occupy and hold the enemies' positions. There remain also, however, other forms of attack of a more local nature. Of these the "Raid"—an attack intended to inflict casualties and to capture prisoners, but not ground—and the "Bombing attack" are the most important,

In the former—the Raid—chief importance is given to the careful carrying out of a prearranged plan, exactly in accordance with Operation orders and synchronized time.

The Trench Mortars will rarely be required to move, but will probably be given an important share in the preliminary bombardment. This is usually of short duration, of which the Stokes Gun by means of its high rate of fire can take full advantage. Also by reason of the steep angle of descent of the bomb, the barrage can be continued until the last moment. Careful ranging must be carried out beforehand, and the angles of elevation for the successive lifts of the barrage should be known to every man, so as to enable him to carry on in the event of casualties.

It will usually be found advisable to direct the weight of the Trench Mortar barrage on to suspected points of resistance or Machine Gun emplacements etc, and not to distribute it evenly along the entire front. The flanks too should not be neglected, and the 4" Smoke Stokes Gun may often be used with advantage to screen the flanks of the attack from Machine Gun fire.

With regard to Bombing attacks, owing to the fact that these are more often than not due to  
**Bombing Attacks** • the temporary or partial success of a hostile attack, there is usually no time for elaborate prearrangement. Fire should however be concentrated upon hostile communication trenches leading to the scene of the attack, and on to Machine Gun emplacements which may try to prevent our bombers moving in the open. The Stokes Gun can also be used closely in support of the bombers, the very short range necessary for this being obtained by the removal of the elevating stand. The Gunner, placing the bed plate flat upon the ground, and sitting cross-legged over it, holds the gun almost vertically between his knees. With slight practice, a considerable degree of accuracy can be obtained in this manner. A case has occurred of a Trench Mortar Officer obtaining the D. S. O. for repelling an attack for a considerable time by this means, when left the only survivor

### ***Light Trench Mortars.***

So far we have dealt solely with the Trench Mortar used **The Defence.** in connection with offensive action, and though, if properly handled and understood, it is of great assistance in this respect, yet, it is undoubtedly looked upon by the average soldier chiefly as an adjunct to the defence.

In normal trench warfare it forms one of the most effective means of harrassing the enemy, and reducing his morale.

There is no doubt that hostile Trench Mortar fire, especially in the absence of retaliation, has a most depressing effect on our own men. This, and the evidence of captured documents and prisoners, would seem to show that the same is the case with our own fire.

In addition to this most important general task of reducing the enemies' morale, the duties of a Trench Mortar Battery in Defence are threefold, *viz.*:-

1. To provide a barrage in case of attack.
2. To destroy all Machine Gun and Trench Mortar Emplacements, Sniper's Posts etc., which have been located, or to render them untenable.
3. To break up working parties or patrols.

These duties necessitate constant and close touch with the Infantry and other "trench inhabitants" such as the Machine Gunner, the F. O. O., the Miner and so on.

The Battery Commander must also keep in touch with the actions and apparent intentions of the enemy. A very close study of Aeroplane photographs is essential, and his front must be kept under continual observation. This latter will usually be done for him by the Infantry, but sentries must be carefully instructed as to what to look out for and what to report; while the Battery Commander by living either with the Battalion or one of the Company Headquarters of the unit holding the line, will ensure that nothing happens of which he is not aware.

Gunnery should be instructed in an emergency to report to the Infantry unit commander for orders in the absence of his own officer, and Company Officers should be made

aware of this. On the other hand in normal times, Infantry Commanders should not interfere with the actions of Trench Mortars, who work directly under the orders of the Brigade, unless allocated to an unit for a specific purpose.

The system on which guns are organized for the defence is  
**Organization of the** one of "Battle" and "Alternative" em-  
**Defence** placements. One of the former and two or three of the latter should be constructed for each gun. On taking up his position in the line the Gunner's chief care is his Battle emplacement, though this is never used for ordinary fire, being entirely reserved for emergencies. It is usually carefully concealed and camouflaged and provided with a deep dug-out containing at least 250 rounds of ammunition. Here the Gun is always kept laid on S. O. S. or night lines, except when actually required for firing. It is then taken to one or other of its alternative emplacements. These are generally constructed in such a way, as to alter as little as possible the existing contour of the trench, but at the same time permitting them to be developed later into Battle emplacements. A dry Magazine should be constructed capable of holding 200 rounds of ammunition which should be replaced daily as expended. From the alternative emplacements fire is directed on such targets within the enemies lines as may occur to the Battery Commander to be most immediately in need of attention, or, as may be detailed to him by the Brigade. The S. O. S. lines of the battle emplacement on the other hand will be designed to provide a barrage immediately in front of our own barbed wire. Night lines should be laid by day on some such target as a gap in the enemies' wire, or a track revealed by aeroplane photographs, which the enemy is suspected of using by night. A second line should also be registered on to our own front line for use in the event of the enemy breaking into it.

The greatest use should always be made of cross and  
**Methods of Fire** enfilade fire. By Cross Fire is meant the firing of two Trench Mortars simultaneously, whose lines of fire

### ***Light Trench Mortars.***

cross in the air. Experience has shewn, that the difficulty of evading the falling bombs, as well as the difficulty in locating the Mortars trench, is thereby greatly increased.

Enfilade fire is particularly advisable, when firing at close ranges, as the chance of a defective charge landing a round in our own front line is much lessened. It also aids concealment considerably, in addition to providing an increased *zone of fire*. This is of course a point of Theory of rifle fire also, but is of increased importance in the case of Trench Mortars by reason of the limited lateral deflection (5 deg.) allowed by the traversing gear. The area of ground covered by the Stokes Mortar forms an ellipse measuring roughly 600 yds. by 60, the greatest width occurring near extreme range. If ever, owing to the irregularities of the front line, it is possible to get into such a position as to bring reverse fire to bear, this is still more to be desired than enfilade fire, as it seems almost impossible then for the enemy to locate the Mortar's position.

It may here also be noted, that short bursts of fire at irregular intervals have greater killing properties than prolonged fire, or fire regulated at so many rounds a minute, or at regular daily times.

In the above outline, I have embodied what I believe to be the results of the experiences of most Trench Mortar officers during the first three years of the war in France. Possibly there is not a great deal of that experience, which would also be applicable to Indian Warfare even against a civilized army. However it is my belief, that the Trench Mortar has come to stay. Statistics show, that the Stokes Gun lands its 2½lbs. of H. E. in the enemies' lines at a far lower cost than any other gun.

The gun itself costs only eight pounds and the bomb about 17/6d. The charge consists of a 12 bore cartridge assisted by cambric rings, both filled with ballistite.

The gun should last for ever, as wear to the barrel is infinitesimal, and there are no working parts to get out of order. A gun, which can get anywhere, where a man can go, and from

there pump High Explosive at the rate of 25 rounds a minute over intervening ground of any altitude into the enemies positions, would suggest itself in a number of ways as a weapon for Mountain Warfare.

The lengthening of the range of the gun is only a question of strengthening the bed plate—one of the lighter portions of the gun. In 1917 the gun was fired experimentally up to 1100yds. and a rate of fire of 40 rounds a minute was also obtained. With the important question of ammunition supply involved by this high rate of fire, I have not dealt at all, partly owing to lack of time, and partly owing to the fact, that it lies rather outside the scope of this lecture or of the requirements of the officer outside this branch of the Service. The British soldier in France, however, has been known to wax eloquent on the Subject of Trench Mortar carrying parties.

In conclusion, I would like to acknowledge the extent, to which I am indebted for the arrangement of this lecture to the Commandant of the Trench Mortar School, Lyndhurst, Hants.

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## **THE ENEMY WITHIN OUR GATES.**

BY

MAJOR G. BENSON COOKE, CANTONMENT MAGISTRATE.

"Timely information regarding the enemy's dispositions is an essential factor of success in war. Systematic arrangements must always be made to ensure that every possible source of information is fully utilised, that all information received is transmitted to the proper quarter, and that it is carefully sifted before any conclusions are formed."

The above paragraph of F. S. R. I. dealing with the duties of the General Staff in War, are equally applicable to the struggle against disease which goes on continuously in every station in India.

In our cantonments we wage a ceaseless warfare with the various disease carriers which record their successes against us in the statistical columns of our annual sanitary returns.

Of late years these records of our constant warfare have shewn a strong balance in our favour; in some cases such as enteric we have practically wiped out the enemy. Occasionally however a rise in the percentage of admissions in one or other disease reminds us that some particular enemy tribe is not finished with.

In such cases resort is often had to special and sometimes costly measures to bring the average down again, and reduce the returns to a normal figure.

It is doubtful if we always make full use of previous local information in such cases.

At times individual medical officers or sanitary officers may follow out a particular pet theory of their own with more zeal than discrimination, bending facts and statistics to prove their case, from which incorrect inferences are not infrequently drawn, and money may be thrown away in measures which prove futile. The tendency to centralize in matters of sanitation may become too pronounced.

Central control on broad lines and the dissemination of information gained in different parts of the country is most

necessary, but this should not be allowed to go too far since it tends to cramp the efforts of men on the spot and tends to too much attention being paid to the compilation of reports and returns which look well in print, at the expense of investigation of local conditions, which may be peculiar to or specially pronounced in certain localities.

For this reason it might be desirable to institute a complete bureau of information and statistics relating to diseases and the habits and incidence of disease carriers of various types in every cantonment, which should be kept up locally by S. M. O's. and sanitary officers.

Extracts from these records should be sent up yearly to Head Quarters and in some cases reports of the history of a particular disease and its progress under varying meteorological conditions might be called for by Head Quarters as occasion demanded.

Decentralisation on such lines would prove a check to the slight tendency to allow eye-wash to creep into reports, which must always be present where such reports are submitted to a third person, who has no opportunity to go into the matter himself on the spot and test the practical value of the conclusions arrived at.

Whereas the man, who leaves a record behind him over his signature, knows that his successor will be very likely to find out the weak points in his work if there are any, his report is therefore much more likely to be a practical and helpful statement shewing what has been done and what the results have been, and indicating a course to be followed in future.

In this way a complete record would be kept up in each cantonment dealing with malaria, sandfly fever, dysentery, enteric and paratyphoid A & B, diseases which specially affect troops, as well as diseases which may affect troops but usually affect the native civil population more severely, such as plague, small-pox and cholera, together with epidemics which it is hoped may not recur as influenza.

***The Enemy within our Gates.***

The knowledge for instance that such and such methods of eradication of mosquitos had been tried in certain years under certain climatic conditions, and had produced such and such an effect, would undoubtedly be most useful to sanitary officers and cantonment magistrates, and would often save a useless expenditure of funds on measures already proved futile. A specimen form regarding the statistics to be kept up might be drawn up and made use of to standardize the information collected. This information should be full and detailed, one reason for this being that it would entail constant reference to the tables in the work of entering up the varying conditions: the day and night temperatures throughout the year, humidity, increase in cultivated areas or in canalisation, rainfall, duststorms, the presence or absence of mosquitos of different kinds, sandflies and houseflies.

Full information regarding mosquitos and sandflies entails a great deal of work and necessitates the expenditure of a considerable amount of time.

**Mosquitos.** In the case of mosquitos, it should be known in what places the larvæ are actually found in the particular cantonment in question, during each month of the year.

Regarding canals, if in the main channel, branch water-courses or in the still water under waterlifts, especially in case the latter are not working.

Notes should be made as to whether the larvæ are found in muddy canal water or only in still parts, where the water has been allowed to stagnate and has cleared.

Further, where the mosquitos themselves hide by day, *i. e.* in crops and, if so, in what kind, in small woods, in hollow ferash trees, or in the dark and cool upper parts of wells. Concerning the type of larvæ found, it should be ascertained if several types occur in one place or if certain depths of water or conditions of light shade etc., seem to be favoured by different types of mosquito larvæ. Then again weather conditions have to be recorded; it may be found, that certain months, in which dry winds and excessive heat prevail, cause an absence of mosquitos

from certain parts of the cantonment or even a general absence of them.

An increase in humidity may be found to bring them out again; their appearance and the state of the wet bulb should be carefully tabulated. At such times special anti-malarial measures may be tried, the results or absence of apparent results should be noted, and the cost of the work done should also be put down.

Negative information is of equal value in fighting the mosquito as in fighting any other enemy; the fact that larvae are not found at certain times of the year in places where they are found at other times is of considerable value. There may be special areas, where mosquitos and sandflies or one and not the other always thrive, and to which special attention must in consequence be paid.

If cultivated areas near lines are suspected of producing or harbouring mosquitos, a record of observations during the year in this area may establish if any particular crop is the cause or not. In some cases heavily irrigated areas of rice, as at Belgaum, do not appear to be responsible for mosquitos at all.

It appears not to have been established yet if a female anopheles suffering from malaria may become cured by biting a human being whose blood is full of quinine.

In that cantonment prolonged wet weather in the rains does not appear to affect the health of the station as might be expected.

On the other hand it appears probable that a series of mild hot weathers in Secunderabad, during which the rainfall was above the normal, were largely responsible for a disastrous epidemic of malaria there. Abnormal weather is generally unhealthy. It appears that the distribution of the rainfall in certain places is of more importance from the point of view of the production of mosquitos than its volume.

Very heavy falls succeeded by dry periods, in which all pools dry up, may give little or no opportunity to larvae to hatch out, whereas a more continual but lighter rainfall may cause some pools to remain as permanent breeding places; but in this

connection it is probable the dampness of the atmosphere going with the more continual rainfall is, provided the temperature is high enough as well, the principal cause of the increase in the number of mosquitos about.

Cases of failure to make much impression on the numbers of mosquitos about, or of special recurrence of malarial or other fever in a station, might be reported at once to Head Quarters for assistance and expert advice.

Sometimes drastic measures have been tried to rid a place of mosquitos such as tree cutting on a large scale, with no result.

In some cantonments new lines built right out in open, perhaps practically desertlike spots, have proved no healthier than those standing in areas which had been condemned owing to the proximity of crops, bazaars or thick trees; possibly depressing surroundings in these cases are combined with some other factor, which may render them unhealthy, but which has up to now not been detected.

**Finance.**—Considerable sums of money might be saved in abandoning the promiscuous oiling of wells, filling up wells etc. by watching existing wells and keeping records of the observations so made; these might be divided up into categories somewhat as under :—

- (a) open wells in use.
- (b) unused open wells.
- (c) open wells with ramps leading down to the water, which cattle and people can easily move up and down.
- (d) open square wells with steps leading down and often of considerable size.
- (e) small circular wells.
- (f) wells with the water level near the surface, or very deep down.
- (g) inadequately closed-in wells which form mosquito shelters by day.

In many stations during the war gardens have been neglected by tenants continually coming and going and consequently not

troubling to keep up a garden; this might be found to have reduced the number of mosquitos owing to the water channels and cement tanks drying up, or it might prove to have had the reverse effect, since the water in the well itself becomes stagnant and larvae may thrive there; whereas, if the well were in use, they would not do so.

It is apparently not known at present whether there is any limit in the depth of the water surface below the ground level at which larvae can thrive.

**Quinine.**—The results obtained from the use of prophylactic quinine would probably vary considerably in different stations.

In fact the debated question of the use of this measure might easily have a different answer in every cantonment, varying with local and even with accidental meteorological conditions.

There seems to be a general idea that the continued use of prophylactic quinine defeats its own ends; it might eventually be discovered that its application should extend over limited periods varying largely in different cantonments, perhaps in March and April and again in the autumn, though the actual dates of its introduction may have to depend on the state of the weather and the humidity of the atmosphere. A hard and fast rule for all stations would seem not to be correct.

**Mosquito nets.** The size and shape and method of hanging mosquito nets adopted by units, and their inspection and repair may require modification as the result of experiment. It may be found too that their withdrawal during certain months of the hot weather would be advantageous. They do not seem necessary when the air is hot and dry and when high winds and duststorms prevail at night, since mosquitos do not thrive under such conditions.

**Sandflies.** More information appears to be desirable concerning sandflies of different kinds. They are very prevalent in some places, less so in others, and absent altogether in other places.

There is some doubt as to their breeding habits and as to the best means of preventing them from attacking people.

***The Enemy within our Gates.***

The issue of vermin in Mesopotamia seemed to give great relief from this scourge.

**Cholera.** Where a piped water supply does not exist, tube wells appear the best means of ensuring the germs not getting into the water supply. Where a piped water supply does exist, the full advantage of it is often thrown away by economy in the number of taps supplied.

If possible there should be a tap in each cookhouse and bungalow to obviate the handling of water, more especially in mussocks.

Most bungalows enjoy the curse of a dual water supply with all its attendant risks.

Where the source of a piped water supply itself becomes contaminated special measures are at once necessitated, as happened in Trichinopoly in 1917.

During cholera outbreaks pinking of wells is safer than cleaning them out, which necessitates sending men down into them, who may themselves be disease carriers.

Occasionally an outbreak of plague, necessitating the camping of natives in fields outside a village, leads to the use of unsuitable irrigation wells for drinking purposes, and an outbreak of cholera occurs; this happened in Secunderabad some years ago.

**Flies.** The great increase in the number of house flies in the spring, which generally occurs in the Punjab, is a source of disease.

It seems difficult actually to discover where they do breed. It is not at all certain that small manure heaps in gardens actually breed flies always.

The provision of fly-proof doors for litter sheds at incinerators costs a considerable amount, and the doors, if not continually watched, are generally left open.

If litter is placed in three or four compartments to dry, and one compartment a day is used up completely, there should be no chance of flies breeding in the litter at all.

**DIARY OF EVENTS ON NORTHWEST FRONTIER.  
(From 16th June 1919 to 15th September 1919).**

*June 16th*—Aerial reconnaissance to Jalalabad; aeroplane fired on from Basawal and Hazarano.

*June 17th*—A force of Afghan regulars and tribesmen reported to have arrived at Rashid Kila on the border North of Hindu-bagh.

*June 19th*—Fighting reported in Chitral between the Bashgiri Kafirs and Afghan tribesmen who attempted to loot Kamdesh.

*June 20th*—A Mohmand lashkar following up our cavalry west of Dakka were drawn under close fire of guns and machine guns, and suffered casualties of about 30 killed and 25 wounded.

*June 21st*—A drive to round up raiding gangs on the Khajuri plain west of Peshawar resulted in the capture of about 25 raiders; a party of about 300 was engaged by armoured cars.

*June 22nd*—On the Chaman front an officer's patrol north of ~~Bogra~~ was fired on inside the border by about 50 tribesmen; an aeroplane reconnoitring in the same area was also fired on.

*June 22nd*—Piqueting troops in the Khaibar moving into position south west of Paindi Khakh were heavily fired on: the enemy were driven off and were reported to have suffered severely.

Wakil Khan, commanding the Afghan troops on the Chitral front, reported to have arrived at Birkot with 1,000 infantry and 2 guns.

*June 25th*—Cavalry reconnaissance from Dakka fired on near Girdi.

*June 23th*—Tribesmen under Afghan regulars attempted a raid against one of our piquets in the Khaibar.

*June 29th*—Strength of Afghan force at Rashid Kila (vide 17th June) reported as 400 with 2 guns.

Punitive operations undertaken against Drazinda (Derajat),



on which place Sheranni and Wazir raiding gangs were dependent; over 500 head of cattle brought in and large quantities of grain destroyed.

A party of enemy, who approached within 300 yards of Chaman defences and fired on our working parties, was dispersed by Lewis gun fire.

*June 30th*—A mixed force from Fort Sandeman destroyed the village of Arzanzai.

Aeroplanes machine-gunned enemy within our territory near Bogra.

*July 1st*—Chaman defences fired on.

Aeroplanes machine-gunned enemy near Bogra. Mekhela telegraph office and the rest house at Murgha Fakirzai (Zhob) burnt down by raiders.

*July 4th*—Piqueting troops in the Tochi were attacked by tribesmen.

*July 5th*—A reconnaissance from Dakka to Girdi was followed up on withdrawal by a party of enemy, who were effectively shelled.

*July 6th*—Aeroplane reconnaissance over Murgha Fakirzai (Zhob) was fired at.

200 to 300 tribesmen made a determined attack on a column marching from Babar to Fort Sandeman, but were driven off leaving 37 dead.

*July 7th*—An officer's patrol attacked by tribesmen 5 miles east of Shelabagh.

*July 8th*—Aerial reconnaissance from Chaman showed increase of Afghan troops and tribesmen at Shetoba, Tsagai, and 4 miles north of latter place: no enemy reported at Dabrai. Road piquets in Tochi successfully repulsed an attack by 400 to 600 tribesmen.

*July 9th*—60 Afghans and 2 guns reported to have arrived at Wana.

Aeroplanes bombed Afghans and tribesmen 3 miles east of Bogra Pass.

Letter from H. E. the Viceroy to Amir left Dakka by





Afghan sowar at 10.30 A. M. Modification of armistice terms refused: Afghan peace delegates invited to meet Indian delegates.

*July 11th*—Aerial reconnaissance on Chaman front showed definite enemy movement south-wards.

*July 12th*—Enemy followed up withdrawal of cavalry reconnaissance from Girdi until brought under machine-gun fire.

*July 13th*—Piqueting troops from Dakka moving into position east of Girdi encountered considerable opposition, but got to close quarters with the enemy and inflicted casualties of about 200 killed and wounded.

*July 14th*—Convoy in camp at Lakaband en route to Fort Sandeman was attacked before daylight by about 200 tribesmen, who retired rapidly on being counter-attacked.

A band of 60 or 70 Shabi Khel Mahsuds made a cleverly organized attack on the aerodrome at Bannu but were counter-attacked and driven off with loss: no damage was done to the machines.

*July 15th*—A gathering of tribesmen near Chora Kandao was dispersed with casualties by a small mixed column from Ali Musjid. Fort Sandeman convoy (see 13th July) was attacked near Babar, but held out until reinforced by the escort from Fort Sandeman sent out to meet it.

*July 16th*—Fort Sandeman convoy continued its march and in the afternoon was attacked by tribesmen, estimated at 1,500 to 2,000, near Kapip. After a stubborn resistance, which was kept up till midnight, the escort was overwhelmed and most of the convoy captured, including the escort's two mountain guns which had previously been rendered unserviceable. A punitive column left Thal for operations against the Biland Khel villages

*July 17th*—A raiding party of about 700 tribesmen and 70 Afghan regulars under an Afghan captain made a converging attack on Bumboret (Chitral), but were driven off by the Chitral Scouts.

**July 18th**—Piquet near Fort Maude (Khaibar) attacked by Afridi tribesmen estimated at 2,000. The piquet was driven in, but the hill was recaptured later in the day.

Chora (Bazar valley) and parties of Afridis west of Lala China were bombed by aeroplanes.

Heavy firing early that night on all piquets in the Khaibar between Kata Kushta and Fort Maude, and the piquet on Orange Patch was heavily attacked from 9 p. m. till midnight. Three unsuccessful attacks were also made on the ropeways camp near Shagai. Afridi casualties were about 50 killed and 60 wounded.

Thal punitive column withdrew to Dadar after destroying villages on left bank of Kurram from Mirza to Umar Khan.

Vihowa raided by a gang about 250 strong on night 18th/19th, who looted some houses on the outskirts of the town but were driven out.

**July 19th**.—Thal punitive column withdrew to Biland Khel, destroying villages en route.

Afghan patrol attacked a wiring party near Bogra but was dispersed by Lewis gun fire.

**July 20th**.—Wana bombed by aeroplanes.

Cavalry patrol near Tsagai (Chaman front) attacked by small parties of infantry and cavalry.

Amir's reply to H. E. the Viceroy's letter of 8th July received at Dakka, stating that Afghan peace delegates would arrive at Dakka on 24th July.

**July 21st**.—Thal punitive column returned to Thal.

During the punitive operations 52 towers were destroyed and all the villages from Shewa to Biland Khel, and those on the left bank of the Kurram opposite Shewa were rendered uninhabitable.

On night 21st/22nd July Shinawari constabulary post was attacked, but attackers retired on approach of column from Fort Lockhart and Hangu.

**July 22nd**.—Hindubagh was attacked by about 300 enemy and the railway buildings were burnt ; the enemy had 22 killed.

Shinawari post again unsuccessfully attacked on night 22nd/23rd July.

*July 23rd.*—Hindubagh was again attacked and the railway station looted.

Enemy who had occupied a hill about 2 miles west of Dakka camp were driven off after some sharp fighting, in which they suffered about 120 casualties including 30 killed.

*July 24th.*—Afghan peace delegates arrived at Dakka. Raiders attacked Vihowa on night 24th/25th but were driven off.

Reports received of several raids in Chitral : a large gang of about 500 raiders was driven off by 2 companies of Chitral Scouts.

*July 25th.*—Afghan peace delegates arrived Rawalpindi. Bridge head established on left bank of Kabul river opposite Dakka.

*July 27th.*—A R. A. F. tender, containing 2 machine guns and ammunition, was looted near Smallan on the Hamai-Loralai road.

*July 28th.*—Hindubagh unsuccessfully attacked by about 150 tribesmen.

Khojak unsuccessfully attacked by tribesmen on night 28th/29th July.

*July 29th.*—Militia road piquet ambushed by about 70 Mahsuds at Khajuri (Tochi).

Hills on Fort Sandeman ridge piquetted by tribesmen : some sniping at post, and part of Bazar burnt.

*July 30th.*—Enemy numbering about 100 cavalry and 250 infantry (including many deserters of Zhob Militia), attempted to intercept an armoured motor battery en route from Hindubagh to Chaman but were driven off with about 35 casualties.

*August 3rd.*—Piquets south of the Tochi road between Isha and Miranshah engaged all day with tribesmen and suffered some casualties.

*August 5th.*—An Afghan Sangar in the Peiwar Area, from which sniping had been going on, was shelled by us : Afghan guns replied.

**August 7th.**—Village of Lilbeg near Chaman was destroyed for complicity with Afghans.

Aeroplanes fired on near Sheroba (Chaman front).

**August 8th.**—Peace treaty signed at Rawalpindi.

Determined attack made on Saidgi piquets (Tochi), when moving out to take up their positions, resulting in close quarter fighting, in which we suffered somewhat severely.

**August 10th.**—Fort Sandeman vicinity reported clear of enemy.

**August 12th.**—Afghan peace delegates left Dakka for Kabul.

**August 13th.**—Operations from Miranshah resulted in a lashkar about 1,500 strong abandoning its positions without fighting.

**August 14th.**—Spin Baldak fort restored to the Afghans in accordance with terms of peace treaty. Tank bazar raided by about 60 Mahsuds on night 14th/15th August.

**August 15th.**—Duki raided by a gang about 60 strong, who were caught on 16th, losing 32 prisoners. Tank again attacked by about 100 raiders on night 15th/16th, who were driven off with a loss of 6 killed and 11 wounded.

**August 17th.**—Punitive operations against Lower Tochi villages.

**August 18th.**—Lashkar of about 100 was encountered by our troops near Vilhwa and lost about 40 killed and 12 prisoners.

Further punitive operations in Lower Tochi.

**August 20th.**—Convoy from Tank to Manjhi heavily attacked on night 20th/21st.

**August 22nd.**—Afghan force at Ala Jirgah left for Rashid Kila en route for Kolat-i-Ghilzai.

**August 23rd.**—Demarcation begun of the hitherto undemarcated Durand line from Tsatsobi Kandao to Palosi.

Saidgi post attacked by a lashkar about 350 strong with the object of capturing the Miranshah convoy: enemy casualties about 35.

**August 25th.**—Afghan troops at Takht left for Kandahar.

**August 27th.**—Girni post attacked on night 27th/28th: enemy entered the post but were driven out. Supporting column drove the enemy from the vicinity on 28th August, but

the post was again attacked on night 28th/29th by a small party.

*August 28th.*—Labour camp at Gambila attacked by a gang of about 150 Mahsuds, who suffered casualties of 14 killed, 50 wounded and 2 prisoners.

*August 29th.*—Further punitive measures against the villages in Matagai and Lower Tochi. A party of 25 rifles, sent from Kila Saifulla (Zhob) 15 miles south to meet a convoy, was ambushed by a gang believed to be Militia deserters. The gang was later engaged by local levies.

*September 6th.*—Erection of boundary pillars on newly demarcated portion of Durand Line completed.

*September 7th.*—Martial Law in Peshawar district abrogated from midnight 7th/8th September.

*September 11th.*—Withdrawal of Afghan troops on Kharlachi front begun.

*September 13th.*—Chora fort in Bazar valley completely destroyed by a column of our troops from the Khaibar with slight opposition. Evacuation of Dakka under the terms of the peace treaty completed: all our troops within the frontier.

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# Journal

OF THE

## United Service Institution of India.

Published under the Authority of the Council.



SIMLA:

UNITED SERVICE INSTITUTION OF INDIA.

Published Quarterly.

Price Rupees 2.

Printed by S. H. LIDDELL, Longacre, Simla.

# United Service Institution of India.

## RULES OF MEMBERSHIP.

**A**LL officers of the Royal Navy, Army, Royal Air Force, Colonial Forces, and of the Indian Defence Force, and Gazetted Government Officers shall be entitled to become members without ballot, on payment of the entrance fee and annual subscription.

The Council shall have the power of admitting as honorary members the members of the Diplomatic Corps, foreign naval and military officers, foreigners of distinction, other eminent individuals, and benefactors to the Institution, not otherwise eligible to become members.

Life Members of the Institution shall be admitted on the following terms:—  
Rupees 75 + entrance fee (Rs. 10) = Rs. 85.

Ordinary members of the Institution shall be admitted on payment of an entrance fee of Rs. 10 on joining, and an annual subscription of Rs. 5, to be paid in advance. The period of subscription commences on 1st January.

Subscribing members of the Royal United Service Institution, Whitehall, London, are not liable for entrance fee while the affiliation rules are in force.

Life members receive the Journal of the Institution post free anywhere, but ordinary members only in India. All members may obtain books from the library on paying V. P. postage.

Honorary Members shall be entitled to attend the lectures and debates, and to use the premises and library of the Institution without payment; but should they desire to be supplied with the Journal, an annual payment of Rs. 8, in advance, will be required.

Divisional, Brigade and Officers' Libraries, Regimental Messes, Clubs, and other subscribers for the Journal, shall pay Rs. 8 per annum.

Serjeants' Messes and Regimental Libraries, Reading and Recreation Rooms shall be permitted to obtain the Journal on payment of an annual subscription of Rs. 6.

If a member fails to pay his subscription for any financial year (ending 31st December) before the 1st June in the following year, a registered notice shall be sent to him by the Secretary inviting his attention to the fact. If the subscription is not paid by 1st January following his name shall be posted in the Reading Room for six months and then struck off the roll of members.

Members joining the Institution on or after the 1st October, will not be charged subscription on the following 1st January, unless the Journals for the current year have been supplied.

Members are responsible that they keep the Secretary carefully posted in regard to changes of rank and address. Duplicate copies of the Journal will not be supplied free to members when the original has been posted to a member's last known address, and not been returned by the post.

Members or Subscribers to the Journal, intimating a wish to have their Journals posted to any address out of India, shall pay in advance Rupee 1 per annum, to cover foreign postage charges, but Life Members who have left India shall not be liable for foreign postage on Journals.

All communications shall be addressed to the Secretary, United Service Institution of India, Simla.

## Contributions to the Journal.

All papers must be written in a clear, legible hand, and only on one side of the paper. All proper names, countries, towns, rivers, etc., must, when in manuscript, be written in capital letters. All plans must have a scale on them.

Contributors are responsible, when they send articles containing any information which they have obtained by virtue of their official positions, that they have complied with the provisions of A. R. I., Vol. II., para. 487, and King's Regulations, para. 453.

Anonymous contributions under a *nom-de-guerre* will not be accepted or acknowledged; all contributions must be sent to the Secretary under the name of the writer, and the paper will, if accepted, be published under that name unless a wish is expressed for it to be published under a *nom-de-guerre*. The Executive Committee will decide whether the wish can be complied with.

The Committee reserve to themselves the right of omitting any matter which they consider objectionable. Articles are only accepted on these conditions.

The Committee do not undertake to authorise the publication of such papers as are accepted, in the order in which they may have been received.

Contributors will be supplied with three copies of their paper *gratis*, if published.

Manuscripts of original papers sent for publication in the Journal will not be returned to the contributor, unless he expresses a wish to have them back and pays the postage.

# United Service Institution of India.

## PATRON.

His Excellency the Viceroy and Governor-General of India.

## VICE-PATRONS.

His Excellency the Governor of Madras  
 His Excellency the Governor of Bombay.  
 His Excellency the Governor of Bengal.  
 His Excellency the Commander-in-Chief in India.  
 His Honour the Lieut. Governor of the U. P. of Agra and Oudh.  
 His Honour the Lieut. Governor of the Punjab.  
 His Honour the Lieut. Governor of Burma.  
 His Honour the Lieut. Governor of Bihar and Orissa.  
 His Excellency the Naval Commander-in-Chief, East Indies.  
 The General Officer Commanding, Northern Command.  
 The General Officer Commanding, Southern Command.

## MEMBERS OF THE COUNCIL, 1919-20.

### *Ex-officio Members*

- |  |  |
|--|--|
| 1. The Chief of the General Staff.<br>2. The Hon'ble Major-General Sir A. H. Bingley, K.C.I.E., C.B.<br>3. The Hon'ble Mr. H. R. C. Dobbs, C.S.I., C.I.E.<br>4. Lieut.-General Sir H. Hudson, K.C.B., C.I.E.<br>5. The Quartermaster General in India.<br>6. Major-General Sir C. H. Burtchell, K.C.B., C.M.G., K.H.S. | 7. The Hon'ble Major-Genl. W.R. Edwards, C.B., C.M.G.<br>8. Brig.-Genl. F. J. Moberly, D.S.O.<br>*9. Brig.-Genl N. D. K. MacEwen, C.M.G. D.S.O., R.A.F.<br>10. Captain N.F.J. Wilson, C.M.G., C.B.E., R.I.M.<br>11. H. D. Craik Esq., I.C.S. |
|--|--|

### *Elected Members.*

- |   |  |
|---|--|
| 1. The Hon'ble Mr. R. A. Mant, C.S.I., I.C.S.<br>*2. Major-Genl. R. St. C. Lecky, C.B., C.M.G.<br>*3. Major-Genl. H. F. Cooke, D.S.O.<br>4. Brig.-Genl. R. E. Vaughan, C.B. | *5. Brig.-General H. Barstow, C.B.E.<br>*6. Lt. Col. H. Austen-Smith, C.I.E..<br>7. Lt. Col. H. M. Alexander, D.S.O.<br>*8. Lt.-Col. Sir C.W. Miles Bart.<br>*9. Major A. I. Sleigh. |
|---|--|

### \*Members of the Executive Committee and in addition:—

Lieut.-Colonel G. M. Molloy, C.B.E. Major A. C. Ogg, D.S.O. <b>SECRETARY &amp; EDITOR</b> <b>SUPERINTENDENT</b> <b>BANKERS—</b>	Major A. V. Gompertz, M. C. Major G. L. L. Mayo. ..LIEUT. COL. W. L. J. CAREY, R.A. ..S. SERGT. W. BRER. ..ALLIANCE BANK OF SIMLA, LTD.
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1. The United Service Institution of India is situated at Simla.  
 2. Officers wishing to become members of the United Service Institution of India should apply to the Secretary. The rules of membership are printed on the opposite page.  
 3. The reading-room of the Institution is provided with all the leading newspapers, magazines, and journals of military interest that are published.

4. There is a well-stocked library in the Institution, from which members can obtain books on loan, free. Suggestions for new books are solicited, and will be submitted to the Committee. Books are sent out to members V. P. for the postage, or bearing by railway.



5. The Institution publishes a Quarterly Journal in the months of January, April, July and October which is issued postage free to members in India and to all life members; but ordinary members wishing to have their journals sent to any address out of India must pay in advance Re. 1 per annum to cover foreign postage charges.

6. Members and the public are invited to contribute articles to the Journal of the Institution for which honoraria will be awarded by the Executive Committee. Rules for the guidance of contributors will be found on the opposite page.

**7. MEMBERS ARE RESPONSIBLE THAT THEY KEEP THE SECRETARY CAREFULLY POSTED WITH REGARD TO CHANGES OF ADDRESS.**



8. When on leave in England, members can, under the affiliation rules in force, attend the lectures and make use of the reading-room, etc., of the Royal United Service Institution, Whitehall, on payment of a subscription of 5 shillings per six months.

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# United Service Institution of India.

JANUARY 1920.

## SECRETARY'S NOTES.

### I.—New Members.

The following members joined the Institution between the 28th September and the 20th December 1919 :—

#### LIFE MEMBERS.

Lieut.-Col., H. R. Dyer  
(From Ordinary).  
Captain A. L. Evans.  
Captain D. G. Rule.

Lieut.-Col., A. C. A. Thackwell  
Captain F. M. Moore.  
Captain H. V. Geary.

#### ORDINARY MEMBERS.

Lieut. A. J. Revell.  
Captain C. E. F. Osborne.  
Lieut. W. B. Hawkes.  
Captain E. G. Strover.  
Major H. A. Hill.  
Lieut. R. Maguire.  
Lieut. K. Jermyn.

Lieut. L. J. Woodhouse.  
Captain G. B. Fyldes.  
Lieut. F. M. Anderson.  
Captain J. Stanford.  
Captain W. J. Breething.  
Lieut. G. T. Bradshaw.  
Capt. R. L. Stephenson.

### II.—Tactical Problems.

In order to assist officers working for tactical examinations, the Institution has schemes with maps and solutions for issue to members only, at Rs. 2-8-0 each. 26 different schemes are now available.

### III.—Maps.

The Institution has for sale a variety of large scale maps (1 and 4 inches to one mile), price As. 8 each.

They are specially useful for instruction in map reading, tactical schemes and in preparation for examinations; maps of both English and Indian country are available.

### IV.—Payment for Articles in the Journal.

Articles accepted for publication in the Journal are paid for, and a sum of approximately Rs. 400 is awarded for articles and reviews published in each Quarterly Journal.



# United Service Institution of India.

## RULES OF MEMBERSHIP.

**A**ll officers of the Royal Navy, Army, Royal Air Force, Colonial Forces, Indian Defence Force, and Casteled Government Officers shall become members without ballot, on payment of the entrance fee and annuity.

The Council shall have the power of admitting as honorary members the Diplomatic Corps, foreign naval and military officers, foreigners of eminent individuals, and benefactors to the Institution, not otherwise eligible.

Life Members of the Institution shall be admitted on the following scales:— Entrance fee (Rs. 10) = Rs. 25.

Ordinary members of the Institution shall be admitted on payment of Rs. 10 on joining, and an annual subscription of Rs. 5, to be paid in advance on the 1st January.

Subsidiary members of the Royal United Service Institution, are not liable for entrance fee while the affiliation rates are in force.

Life members receive the Journal of the Institution post free and members only in India. All members may obtain books from the Library.

Honorary Members shall be entitled to attend the lectures and use the premises and library of the Institution without payment; but they shall be supplied with the Journal, on annual payment of Rs. 5, in advance.

Divisional, Brigade and Officers' Libraries, Regimental Messes and subscribers for the Journal, shall pay Rs. 5 per annum.

Sergeants' Messes and Regimental Libraries, Reading and Recitation shall be permitted to obtain the Journal on payment of an annual subscription of Rs. 5.

If a member fails to pay his subscription for any financial year (December) before the 1st June in the following year, a registered notice shall be sent to the Secretary drawing his attention to the fact. If the subscription is not paid by the 1st January following, his name shall be posted in the Reading Room and struck off the roll of members.

Members joining the Institution on or after the 1st October, will be supplied with the following 1st January, unless the Journals for the year are supplied.

Members are responsible that they keep the Secretary careful of changes of rank and address. Duplicate copies of the Journal will be sent to members when the original has been posted to a member's last address and returned by the post.

Members or Subscribers to the Journal, intimating a wish to have the Journal posted to any address out of India, shall pay in advance Rupee 5, to cover foreign postage charges, but Life Members who have left India are exempt from foreign postage on Journals.

All communications shall be addressed to the Secretary, United Service Institution of India, Simla.

## Contributions to the Journal.

All papers must be written in a clear, legible hand, and only in capital letters. All proper names, countries, towns, rivers, etc., must, when in capital letters. All plans must have a scale on them.

Contributors are responsible, when they send articles containing which they have obtained by virtue of their official positions, that they conform with the provisions of A. R. I., Vol. II., para. 487, and King's Regulations.

Anonymous contributions under a *nom-de-guerre* will not be acknowledged; all contributions must be sent to the Secretary under the name of the contributor, and the paper will, if accepted, be published under that name. If the contributor wishes for it to be published under a *nom-de-guerre*, The Executive Committee will consider whether the wish can be complied with.

The Committee reserve to themselves the right to reject any article which they consider objectionable. Articles are only acceptable if they are of interest to the Institution.

The Committee do not undertake to and accept, in the order in which they may have received them, Contributions will be supplied with the Journal.

Manuscripts of original papers must be sent to the Secretary, United Service Institution of India, Simla, for consideration. The contributor, unless he expresses otherwise, shall retain the right of publication.

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**V.—Contributions to the Journal.**

With reference to Army Regulations, India, Volume II, paragraph 487, and King's Regulations, paragraph 453, as amended by Army Order 340 of 1913, intending contributors to the Journal of the United Service Institution of India are informed, that action to obtain the sanction of His Excellency the Commander-in-Chief to the publication of any article in the Journal of the United Service Institution of India will be taken by the Committee. Contributors are, therefore, responsible that the sanction of their immediate superior has been obtained, and this should be noted on all articles sent for publication. Articles need not be submitted in duplicate.

Contributors must have their articles either typed or printed.

2. It has been decided to introduce two new items in the Journal headed—

i. Criticisms

ii. Notes on current Military and Naval questions.

The rules for (i) to be—

That the criticism should be headed with the title of the article criticised, and the date of the Journal in which published.

That criticisms should be signed with a nom-de-plume, but that critics must disclose their identity to the Secretary.

The rules for (ii) to be the same as for Articles.

**VI.—Library Catalogue.**

The library catalogue revised up to 1st January 1916 is now available. Price Rs. 2 or Rs. 2-4-0 per V.P.P. A list of books received each year is published with the January Journal.

**VII.—Gold Medal Prize Essay 1919-20.**

For subject and conditions please see page IV.

**VIII.—Army List Pages.**

The U. S. I. is prepared to supply members and units with manuscript or typewritten copies of Indian Army List pages, at the following rates:—

Manuscript, per page Re. 1.

Typewritten, per page Rs. 2.

## **Secretary's Notes.**

iii

### **IX.—Books.**

#### *Books Presented.*

- Modern Artillery in the Field.** By Colonel H. A. Bethell. (Presented by Major General Sir A. H. Bingley, K.C.I.E.)
- The Bombay Volunteer Rifles.** By Samuel T. Sheppard. (Presented by the Author).
- Guide to the duties of an Adjutant.** By Tallow.
- Net Practice for Platoons.** By Brig. General F. G. Guggisberg, C.M.G., D.S.O.
- The Transport Officers Guide.** By Lieut.-Colonel J. Atkinson, D.S.O., O.B.E., R.A.S.C.
- Street Fighting for Junior Officers.** By Egyptforce.
- Tests and Competitions for an Infantry Battalion.** By Colonel T. N. Howard, D.S.O.
- (Presented by the publishers Messrs Gale and Polden Ltd.)
- The Automatic Pistol.** By J. B. L. Noel, F.R.C.S. (Presented by the Publishers Messrs Forster Groom and Co., Ltd.)

#### *Books Purchased.*

- Economic Statemanship.** By J. E. Barker. (N 399).
- The Grand Fleet.** By Admiral Viscount Jellicoe. (P. 75).
- Q. Beat Adventures.** By Lt. Commdr. H. Auten V.C. (P. 76).
- Marshal Foch-His Life etc.** By Hilliard Attridge. (M. 963).
- Five months on a German Raider.** By a Englishman. (K. 210)
- Belgium under German occupation.** By Brand Whitlock (N. 400).
- The Naval Annual 1919.** By Earl Brassey. (P. 73).
- The Safety of the Nation.** By Ian D. Colvin. (N. 481).
- The Flags of our Fighting Army etc.** By S. C. Johnson. (O. 205)
- The Last Million.** By Ian Hay. (K. 211).
- Falklands, Jutland and the Bight.** By Commdr. the Hon. B. Bingham. (P. 77).
- 450 Miles to Freedom.** By Capt. M. A. B. Johnston and Cap. K. D. Yearsley. (F, 361).

#### *Books Ordered.*

- Through the Hindenburg Line.** By F. A. McKenzie.
- The Harwich Naval Forces.** By E. F. Knight.
- Under the Periscope.** By Lieut. M. Bennet.
- Ludendorfs Memoirs.** By Ludendorf.
- In Kut and Captivity.** By Major Sandes.

# United Service Institution of India.

## GOLD MEDAL ESSAY COMPETITION 1919-20.

The Council have chosen as the subject for the Gold Medal Essay for 1919-20 the following:—

Under K. R. 106 Commanding Officers are responsible for the systematic and efficient instruction of officers under their command in all professional duties, and for their due preparation for examination for promotion.

Having regard to the extended scope of an officer's professional duties since the war, is the system above indicated, the one best calculated to secure the efficiency to be arrived at, and if not, what system of instruction should take its place?

The following are the conditions of the competition:—

- (1) The competition is open to all gazetted officers of the Civil Administration, the Royal Navy, Army, and Royal Air Force or Indian Defence Force who are members of the U. S. I. of India.
- (2) Essays must be printed or type-written and submitted in *triplicate*.
- (3) When a reference is made to any work, the title of such work is to be quoted.
- (4) Essays are to be *strictly anonymous*. Each must have a motto, and enclosed with the essay there should be sent a *sealed* envelope with the motto written on the outside and the name of the competitor inside.
- (5) Essays will not be accepted unless received by the Secretary on or before the 30th June 1920.
- (6) Essays will be submitted for adjudication to 3 Judges chosen by the Council. When the decisions of the 3 Judges are received the Committee will submit the four essays, placed first in order by the Judges, with their recommendations on the award of the Gold Medal to the Council, who will decide whether the Medal is to be awarded and whether the essay may be published.
- (7) The name of the successful candidate will be announced at a Council Meeting to be held in September or October 1920.
- (8) All essays submitted are to become the property of the United Service Institution of India, *absolutely* and authors will not be at liberty to make any use whatsoever of their essays without the sanction of the Council.
- (9) Essays should not exceed about 15 pages of the size and style of the Journal, exclusive of any appendices, tables or maps.

By order of the Council,

SIMLA,

W. L. J. CAREY, LIEUT.-COL., R.A.,

30th June 1919.

Secretary, U. S. I. of India.

# United Service Institution of India

## PRIZE ESSAY GOLD MEDALLISTS.

*(With rank of Officers at the date of the Essay).*

- 1872...ROBERTS, Lieut.-Col. F. S., V.C., C.B., R.A.  
1873...COLQUHOUN, Capt. J. A. S., R.A.  
1874...COLQUHOUN, Capt. J. A. S., R.A.  
1879...ST. JOHN, Maj. O. B. C., R.E.  
1880...BARROW, Lieut. E. G., 7th Bengal Infantry.  
1882...MASON, Lieut. A. H., R.E.  
1883...COLLEN, Maj. E. H. H., S.C.  
1884...BARROW, Capt. E. G., 7th Bengal Infantry.  
1887...YATE, Lieut. A. C., 27th Baluch Infantry.  
1888...MAUDE, Capt. F. N., R.E.  
YOUNG, Maj. G. F., 24th Punjab Infantry (especially awarded a silver medal).  
1889...DUFF, Capt. B., 9th Bengal Infantry.  
1890...MAGUIRE, Capt. C. M., 2nd Cav., Hyderabad Contingent.  
1891...CARDEW, Lieut. F. G., 10th Bengal Lancers.  
1893...BULLOCK, Maj. G. M., Devonshire Regiment.  
1894...CARTER, Capt. F. C., Northumberland Fusiliers.  
1895...NEVILLE, Lieut.-Col. J. P. C., 14th Bengal Lancers.  
1896...BINGLEY, Capt. A. H., 7th Bengal Infantry.  
1897...NAPIER, Capt. G. S. F. Oxfordshire Light Infantry.  
1898...MULLALLY, Maj. H., R.E.  
CLAY, Capt. C. H., 43rd Gurkha Rifles (specially awarded a silver medal).  
1899...NEVILLE, Col. J. P. C., S.C.  
1900...THULLIER, Capt. H. F., R.E.  
LURBOCK, Capt. G., R.E., (specially awarded a silver medal).  
1901...RANKEN, Lieut.-Col. G. P., 46th Punjab Infantry.  
1902...TURNER, Capt. H. H. F., 2nd Bengal Lancers.  
1903...HAMILTON, Maj. W. G., D.S.O., Norfolk Regiment.  
BOND, Capt. R. F. G., R.E., (specially awarded a silver medal).  
1904...MACMUNN, Maj. G. F., D.S.O., R.F.A.  
1905...COCKERILL, Maj. G. K., Royal Warwickshire Regiment.  
1907...WOOD, Maj. E. J. M., 99th Deccan Infantry.  
1908...JEUDWINE, Maj. H. S., R.A.  
1909...MOLYNEUX, Maj. E. M. J., D.S.O., 12th Cavalry.  
ELSMIE, Maj. A. M. S., 56th Rifles, F. F., (specially awarded a silver medal).  
1911...MR. D. PETRIE, M.A., Punjab Police.  
1912...CARTER, Major B. C., The King's Regiment.  
1913...THOMSON, Major A. G., 58th Vaughan's Rifles (F. F.).  
1914...BAINBRIDGE, Lieut.-Col. W. F., D.S.O., 51st Sikhs, (F. F.)  
NORMAN, Major C. L. M.V.O., Q. V. O. Corps of Guides.  
(specially awarded a silver medal).  
1915...No award.  
1916...CRUM, Major W. E., V.D., Calcutta Light Horse.  
1917...BLAKER, Major W. F., R. F. A.  
1918...GOMPERTZ, Capt. A. V., M.C., R.E.  
1919...GOMPERTZ, Capt. M. L. A., 108th Infantry.

## MacGREGOR MEMORIAL MEDALS.

1. The MacGregor Memorial Medal was founded in 1888 as a memorial to the late Major-General Sir Charles MacGregor. The medals are awarded for the best military reconnaissances or journeys of exploration of the year.

2. The following awards are made annually in the month of June:—

(a) For officers—British or Indian—silver medal.

(b) For soldiers—British or Indian—a silver medal, with Rs. 100 gratuity.

3. For specially valuable work a gold medal may be awarded in place of one of the silver medals, or in addition to the silver medals, whenever the administrators of the fund deem it desirable. Also the Council may award a special additional silver medal, without gratuity, to a soldier, for special good work.

4. The award of medals is made by His Excellency the Commander-in-Chief as Vice-Patron, and the Council of the United Service Institution, who were appointed administrators of the Fund by the MacGregor Memorial Committee.

5. Only officers and soldiers belonging to the Army in India (including those in civil employ) are eligible for the award of the medal.\*

6. The medal may be worn in uniform by Indian soldiers on ceremonial parades, suspended round the neck by the ribbon issued with the medal.

### *Note.*

(i) Personal risk to life during the reconnaissance or exploration is not a necessary qualification for the award of the medal; but in the event of two journeys being of equal value, the man who has run the greater risk will be considered to have the greater claim to the reward.

(ii) When the work of the year has either not been of sufficient value or has been received too late for consideration before the Council meeting, the medal may be awarded for any reconnaissance during previous years considered by His Excellency the Commander-in-Chief to deserve it.

### MacGregor Memorial Medallists.

*(With rank of Officers at the date of the Award).*

1889...BELL, Col. M.S., V.C., R.E. (specially awarded a gold medal).

1890...YOUNGHUSBAND, Capt. F.E., King's Dragoon Guards.

1891...SAWYER, Major H. A., 45th Sikhs.

RAMZAN KHAN, Havildar, 3rd Sikhs.

1892...VAUGHAN, Capt. H. B., 7th Bengal Infantry.

JAGGAT SINGH, Havildar, 19th Punjab Infantry.

1893...BOWER, Capt. H., 17th Bengal Cavalry (specially awarded a gold medal).

FAZALDAD KHAN, Dafadar, 17th Bengal Cavalry.

1894...O'SULLIVAN, Major G. H. W., R.E.

MULL SINGH, Sowar, 6th Bengal Cavalry.

---

\*N.B.—The terms "officer" and "soldier" include those serving in the British and Indian armies and their reserves; also those serving in Auxiliary Forces, such as the Volunteers and Corps under Local Governments. Frontier Militia Levies and military Police, also all ranks serving in the Imperial Service Troops.

# The Journal

OF THE

## United Service Institution of India.

Vol. XLIX.

JANUARY 1920.

No. 218.

### **THE TACTICAL EMPLOYMENT OF ARTILLERY IN THE FIELD.**

**Lecture by Major-General R. St. C. Lecky, O.B., C.M.G., Inspector of R. H. and R. F. A. in India, to the Students at the Staff College, Quetta.**

Gentlemen, before dealing with certain headings which I propose to touch on in the course of my lecture to-day, I wish primarily to bring to your notice one governing principle, *vis*: "Objects of fire."

Artillery cannot ensure decisive success in battle by its own destructive fire. It is the advance of the Infantry that alone is capable of producing this result.

Hence it follows that the underlying principle of all Artillery Tactics must be to help the Infantry to maintain its mobility and offensive power by all means at its disposal.

The primary objects of Artillery fire should therefore be:—

- (1) to assist movements of its own Infantry,
- (2) to prevent movements of the enemy's Infantry.

The above principles were laid down in F. A. T. of 1914, previous to the war, and they have been proved up to the hilt throughout all operations in the field in the various theatres during the period 1914—1918.

It may perhaps not be out of place to relate a personal experience, one of many, to illustrate how true the above principle proved itself in war.

The illustration I give is the employment of the Artillery in the Battle of Arras, Easter Monday, 1917.

The Artillery allotted to the 3rd Army for these operations was, including Trench Mortars, 2,175 pieces of various calibres.

The Artillery plan of action was based on the instructions for the offensive, issued by the General Staff of the Army and

## **Artillery in the Field.**

was formed to put this scheme into force. When the Artillery instructions were prepared and approved of they were issued through the General Staff to the Corps concerned: these Corps in passing their orders on to their Divisions issued them in further detail.

Again Divisions issued more detailed orders to the Artillery through C.'s R. A. of Divisions, till eventually Brigades and Batteries of Artillery received their respective tasks.

We have now to consider what tasks were allotted to the various units. They amounted generally speaking to cutting wire, destroying strong points and machine gun nests, etc., all of which impeded the mobility and offensive action of our own Infantry, and therefore had to be destroyed.

The above is one of many illustrations to prove how correct the above quoted principle has proved itself regarding objects of fire and Artillery Tactics. I personally consider that it covers all situations regarding the employment of artillery with perhaps two exceptions, *viz.*:—

(1) Harassing fire by night.

(2) Artillery in the defence, where certain modifications may become necessary.

*Covering fire.*—The necessity for covering fire is so very obvious that it requires little comment from me.

With the modern armament of to-day, attacking Infantry have little or no chance of reaching their objective unless supported with covering fire from artillery and machine guns. I propose dealing with that of Artillery only.

To return to the experiences of the great war.

The Germans in the "Somme" fighting, found that it was impossible to live in their trenches owing to the destructive fire of our artillery. Their antidote was to come out into No Man's Land, and occupy and fortify shell holes to enable them to impede the advance of our Infantry with their machine guns; our counter to this was the "Creeping Barrage."

This, again, goes to prove the governing principle of Artillery Tactics, *viz.*,—to maintain the mobility and offensive power of its own infantry.

Recently on the North-West Frontier, in Afghanistan, the necessary covering fire of the Artillery to support its Infantry was similar in principle, though somewhat different in execution, to suit the existing conditions; but the same governing principle, of Artillery Tactics was again in evidence, *viz.*, to help the movement of its own infantry.

We are told in one of our Manuals that the application of principles to circumstances denotes sound military training; Gentlemen, I think it only remain for us to learn our principles and to apply them intelligently as occasion arises.

To apply these principles, co-operation with the General Staff is essential.

If it is decided that the attack is to be preceded by a preliminary bombardment, the plan for this bombardment is prepared by General Officer Commanding, Royal Artillery Corps, in conjunction with the General Staff, under the orders of the Corps Commanders.

It is the duty of the Senior General Staff Officer of a formation to see that the Artillery plan meets the Commander's requirements in every respect.

It provides for the employment of all the artillery resources in the Corps, co-operation of the artillery on either flank being arranged for.

The General Staff of a formation is responsible for all the work of co-ordination between the infantry and artillery plans. It should further co-ordinate the action of machine guns; it is its duty to see that the artillery plan is understood by the Commander of the attacking infantry, and that the views of these Commanders are considered, and if necessary incorporated in the plan.

#### KNOWLEDGE REQUIRED BY STAFF OFFICERS.

(a) They should know the types of artillery to be employed for the task in hand, *i.e.*, they should have the necessary knowledge to know what proportion of the various calibres of guns and howitzers should be demanded, previous to the commencement of operations, to produce a certain effect on a front to be attacked.



**V.—Contributions to the Journal.**

With reference to Army Regulations, India, Volume II, paragraph 487, and King's Regulations, paragraph 453, as amended by Army Order 340 of 1913, intending contributors to the Journal of the United Service Institution of India are informed, that action to obtain the sanction of His Excellency the Commander-in-Chief to the publication of any article in the Journal of the United Service Institution of India will be taken by the Committee. Contributors are, therefore, responsible that the sanction of their immediate superior has been obtained, and this should be noted on all articles sent for publication. Articles need not be submitted in duplicate.

Contributors must have their articles either typed or printed.

2. It has been decided to introduce two new items in the Journal headed—

i. Criticisms

ii. Notes on current Military and Naval questions.

The rules for (i) to be—

That the criticism should be headed with the title of the article criticised, and the date of the Journal in which published.

That criticisms should be signed with a nom-de-plume, but that critics must disclose their identity to the Secretary.

The rules for (ii) to be the same as for Articles.

**VI.—Library Catalogue.**

The library catalogue revised up to 1st January 1916 is now available. Price Rs. 2 or Rs. 2-4-0 per V.P.P. A list of books received each year is published with the January Journal.

**VII.—Gold Medal Prize Essay 1919-20.**

For subject and conditions please see page IV.

**VIII.—Army List Pages.**

The U. S. I. is prepared to supply members and units with manuscript or typewritten copies of Indian Army List pages, at the following rates:—

Manuscript, per page Re. 1.

Typewritten, per page Rs. 2.

## ***Secretary's Notes.***

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### **IX.—Books.**

#### ***Books Presented.***

- Modern Artillery in the Field.** By Colonel H. A. Bethell. (Presented by Major General Sir A. H. Bingley, K.C.I.R.)
- The Bombay Volunteer Rifles.** By Samuel T. Sheppard. (Presented by the Author).
- Guide to the duties of an Adjutant.** By Tallow.
- Net Practice for Platoons** By Brig. General F. G. Guggisberg, C.M.G., D.S.O.
- The Transport Officers Guide.** By Lieut. Colonel J. Atkinson, D.S.O., O.B.R., R.A.S.C.
- Street Fighting for Junior Officers.** By Egyptforce.
- Tests and Competitions for an Infantry Battalion.** By Colonel T. N. Howard, D.S.O.
- (Presented by the publishers Messrs Gale and Polden Ltd.)
- The Automatic Pistol.** By J. B. L. Noel, F.R.C.S. (Presented by the Publishers Messrs Forster Groom and Co., Ltd.)

#### ***Books Purchased.***

- Economic Statemanship.** By J. E. Barker. (N 399).
- The Grand Fleet.** By Admiral Viscount Jellicoe. (P. 75).
- Q. Beat Adventures** By Lt. Commdr. H. Auten v.c. (P. 76).
- Marshal Foch—His Life etc.** By Hilliard Attridge. (M. 963).
- Five months on a German Raider.** By a Englishman. (K. 210)
- Belgium under German occupation.** By Brand Whitlock (N. 400).
- The Naval Annual 1919.** By Earl Brassey. (P. 73).
- The Safety of the Nation.** By Ian D. Colvin. (N. 481).
- The Flags of our Fighting Army etc.** By S. C. Johnson. (O. 205)
- The Last Million.** By Ian Hay. (K. 211).
- Falklands, Jutland and the Bight.** By Commdr. the Hon. B. Bingham. (P. 77).
- 450 Miles to Freedom.** By Capt. M. A. B. Johnston and Cap. K. D. Yearsley. (F, 361).

#### ***Books Ordered.***

- Through the Hindenburg Line.** By F. A. McKenzie.
- The Harwich Naval Forces.** By E. F. Knight.
- Under the Periscope.** By Lieut. M. Bennet.
- Ludendorfs Memoirs.** By Ludendorf.
- In Kut and Captivity.** By Major Sandes.

## **Artillery in the Field.**

(b) Should know generally the effect to be expected from the various natures of artillery, *i.e.*, how many shell per gun per yard are estimated as necessary to produce the destruction required.

(c) When to employ the artillery, *i.e.*, it is known that a certain number of rounds are necessary to produce a certain result; the guns can only fire at a certain rate; and there are only a limited number of guns available for the particular task in hand. Hence the problem to be solved is, taking the above factors into consideration, when must the bombardment commence?

(a), (b) and (c) are of course the duty of the Artillery Commander to work out and submit. If the General Staff has a grasp of and has studied these details, this knowledge will be of great value and assistance to the Gunner and from personal knowledge, I am in a position to state that the Gunner feels his hand strengthened thereby.

Also when an offensive is contemplated, reinforcements in artillery and extra ammunition have to be demanded from the next senior formation. Questions always arise as to the necessity of such demands. If the General Staff have a knowledge of how the details are arrived at, they are in a better position to show the necessity for the demands made.

I do not suggest that it is by any means essential for a Staff Officer to carry these details in his head or to commit them to memory, but a general knowledge of how the decision is arrived at will be to his advantage.

(a), (b) and (c) are not applicable to a surprise attack where tanks are used to cut the wire, and surprise is aimed at through having no preliminary bombardment; but in the absence of tanks, the attack of our Infantry against a strongly prepared position fully wired on all its systems is not a feasible proposition. Under these conditions a preliminary bombardment is a necessity, and the points discussed need the consideration of the General Staff.

### ENFORCING AND FACILITATING CO-OPERATION.

As far as the artillery are concerned, the above matter resolves itself briefly into :—

## **Artillery in the Field.**

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- (1) the duties of "G" Staff, and
- (2) the duties of "Q" Staff.

As regards the duties of "G" Staff, the artillery only require clear and concise orders, without unnecessary detail.

"Q" Staff should place at the disposal of the artillery, all requirements necessary to enable them to put the operation in hand into force, *i. e.*, Ammunition, Roads, Materiel, etc.

The supply of ammunition being vital to the Artillery in the field, a brief outline of the system is as follows :—

### **RESPONSIBILITY FOR AMMUNITION SUPPLY.**

- (1) Decisions regarding amounts to be maintained in forward areas and allotments of gun ammunition for specific operations.

General Staff of Corps in conjunction with Royal Artillery.

- (2) Executive work as regards supply of gun ammunition in advance of railhead.

Corps R. A.

- (3) Demanding and maintaining ammunition required at railhead.

Corps "Q."

For forwarding ammunition from railhead, an Ammunition Park is established with lorries, such lorries being placed under the orders of the S. M. T. O.

This park is under the orders of the Corps Royal Artillery as regards all artillery requirements in advance of railhead.

This organization does not exist in India at present.

A. R. P.'s are filled under the orders of the Corps Royal Artillery.

Corps Royal Artillery informs S. M. T. O., the number of lorries required to convey ammunition from Railhead to A.R.P.'s for any given day. S. M. T. O. will provide such lorries and at the same time will inform "Q" Staff what lorries remain surplus in the ammunition park, in the event of their being required for transport work elsewhere.

To enable Corps Royal Artillery to demand the requisite number of lorries the following returns are necessary :—

### **RETURNS.**

- (a) *Daily* by wire. Expenditure during proceeding 24

## **Artillery in the Field.**

hours, from all Divisional Artilleries, Corps R. A. and R. H. A. Brigades, to Corps R. A.

(b) *Daily*. Totals of above from Corps R. A. to Corps "Q".

(c) *Daily by D. R. L. S.* from all Divisional Artilleries, Corps R. A., R. H. A. Brigades and Ammunition Park to Corps R. A. a statement showing :—

- (1) Ammunition held on hand with units.
- (2) Expended during past 24 hours.
- (3) On hand at A. R. P.'s.
- (d) *Weekly*—total of above from Corps R. A. to Corps "Q".
- (e) *As required*; specific demands for special ammunition or for increase in amounts laid down for maintenance at railheads.

Corps R. A. to Corps "Q".

### CHAIN OF SUPPLY.

From Railhead Ammunition Park to A. R. P.'s by M. T., Ammunition Park.

From A. R. P.'s to Battery Wagon line by D. A. C.

From Battery Wagon Line to gun positions by Battery wagons or by mules (pack).

When operating on the line of a metalled road it will frequently be possible in the majority of cases to push the A. R. P.'s sufficiently forward, so as to eliminate the D. A. C.'s; Batteries refilling direct from the A. R. P.'s.

### LIMITATIONS OF THE ARTILLERY.

A battery can only cover a certain frontage with its fire, generally  $1\frac{1}{2}$  times its own breadth, *viz.*, 150 yards.

During continuous fighting a certain proportion of guns must be allowed for as non-effective, *i. e.*, out of action; guns requiring time to cool, etc; range limits, for both H. E. and shrapnel; safety clearance of crests and dead ground.

In foggy weather where vision is obscured the value of artillery fire is of necessity greatly diminished, *e g.*, German attack, 21st March 1918.

**PRINCIPLES OF EMPLOYMENT OF THE ARTILLERY IN THE VARIOUS PHASES.**

*In attack.*—Success being always the main object, it follows that it is necessary to employ all the artillery sources available, to ensure the mobility and offensive power of our infantry being maintained. A mobile reserve of artillery ready to move forward when an advance is feasible would be a luxury; but on the Western Front it was never considered that we were sufficiently strong in artillery to enable us to set aside such a reserve.

Certain batteries earmarked to move forward in support of the infantry was the usual procedure adopted.

Preparatory to the attack, every possible endeavour should be made to ensure secrecy in concentration and surprise in attack. Hence registration should be carried out by reinforcing artillery unobtrusively and to simulate normal artillery fire as far as possible. Batteries must be sited well forward in order to support the advance of the infantry to the greatest possible distance without excessive movement during the early stages of the attack.

The fire of artillery and trench mortars should not be evenly distributed over the entire front of the attack, but must be designed to bring a concentrated fire to bear upon the points where it is intended to break through the enemy's defence; the depth of the bombardment will depend upon the depth and nature of the enemy's defensive system, but it should always be deep enough to cover the zone of the enemy's Field Artillery positions.

The artillery will cover the advance of the infantry as long as possible by a creeping barrage, by the bombardment of the enemy's defences, by the neutralization of the hostile batteries, and by long range fire calculated to hinder the assembly and advance of reinforcements or counter-attacking troops.

Some field batteries, both gun and howitzers, should be specially detailed to move forward in close support of the leading infantry battalions. They should advance by sections, so that all guns of a Battery are not out of action at the same time.

## **Artillery in the Field.**

When a break-through has been effected, it is all important that Artillery Observing Officers should push forward to control the fire of their batteries. The enemy will make every endeavour at this period to check the mobility and offensive power of our infantry with fire effect from all available sources at his disposal.

It is the duty of Artillery Forward Observing Officers to locate such hostile fire and neutralise it. Map shooting and unobserved fire at this phase is not to be thought of, hence the necessity for Forward Observing Officers getting forward to where they can see the progress of the battle, and direct the fire of their batteries.

Infantry Officers on such occasions can materially assist the F. O. O. provided they have studied the Gunner's methods and know his difficulties.

*In Defence.*—The two guiding principles are that—

- (1) The Artillery should be sited in depth.
- (2) An Artillery Mobile Reserve should be detailed.

I have not at present seen the "Artillery Training" Manual, which I understand is ready for issue at home, so I do not know what technical terms are used in it to describe the various phases of artillery action in the defence.

The procedure laid down by General Headquarters, France; Notes No. 7, Artillery in the Defence, was briefly as follows :—

When information indicated that a concentration of the enemy, presumably for an offensive, was taking place on any particular front; an artillery plan called "Counter-preparation" was put into force. It included :—

- (1) The destruction of hostile artillery by Counter-battery work, harrassing fire chiefly at night on all roads and approaches, destruction of dumps, railways, bridges and anything likely to impede progress of the enemy's concentration.
- (2) A pre-arranged intense bombardment to be put into force when an attack was believed imminent, and there was sufficient indication that the enemy was at and approaching his place of assembly.

- (3) A. S. O. S. barrage to be held in reserve until the signal had been given to indicate that the enemy was in the open and advancing to the attack.

One main principle as regards artillery tactics in the defence was that when an attack was imminent, it was the duty of the artillery to employ every gun, with the object of breaking up the enemy's infantry and reducing their fighting efficiency immediately prior to the assault. At this period counter-battery work should cease, all guns having as their objective the destruction of the hostile infantry.

Flank defence and observation must be arranged for, and all guns within about two miles of the front line should be wired in and obstacles provided. Better still, when the battery position is made into a strong point, which will form a rallying position for the Infantry when required, a site for the use of Lewis guns and rifles should be pre-arranged and men told off to occupy it as occasion arises. Ranges to all distinct features and objects should be studied and known. Certain look-out posts should be established and manned when necessary.

There is I think, a tendency to neglect the teaching of Artillery in the Defence, which in my opinion is short-sighted.

In all offensive operations, counter-attacks from the enemy are to be expected and in practice they are common, but frequently of only a temporary nature.

If the artillery is not trained to meet such situations, it may find itself at a disadvantage.

*Forward guns and Sections.*—Their object is twofold. Detaching sections and sending them forward to carry out harassing fire makes it feasible to keep the main battery position silent; with sound ranging instruments in the enemy's possession this is often desirable. Further, a silent position has the advantage of allowing the personnel to rest. Sections and single guns sited forward are often in a position to obtain enfilade fire on roads and approaches, which would be unobtainable from further back; also if discovered they can change position. Their rôle practically amounts to a roving commission.



## ***Artillery in the Field.***

***Anti-Tank Guns***—are sited forward. To be effective against tanks, they must be in a position to be able to see and fire at them over the open sights. If placed too near the front line there is the risk that they may be overwhelmed in the hostile preliminary bombardment. If placed too far back, the layers cannot see their objective. The plan adopted was to place these guns some 1,500 yards behind the front line with orders *Not* to disclose their position unless an attack was delivered. They were self-contained with necessary ammunition, detachment one non-commissioned officer and three men, if officers were not available.

In the 3rd Army it was anticipated that the Germans would employ tanks in their offensive, which commenced 21st March 1918. Our measures to meet them were :—

- (1) The chance of our S. O. S. Barrage hitting them in No Man's Land.
- (2) Anti-Tank Guns.
- (3) Flank guns run out to commanding positions in the zone of the field artillery gun line.
- (4) Sections or batteries moved forward from the Mobile Reserve.

As is now known, the Germans did not employ tanks when attacking on this front.

***Anti-Aircraft guns***—are sited in the forward areas and also rearward to protect railheads, dumps, towns, etc. They are effective for a radius of 4,000 yards, and are usually placed to allow of a certain overlap of fire. At night they are used in conjunction with searchlights (when available) an elaborate procedure too lengthy to describe in the time at my disposal.

***Smoke screens*** may be produced by Artillery shells, Trench Mortars, Bombs, Smoke Candles, Smoke generators and Grenades.

*They are useful :—*

- (1) to increase the screening effect of a barrage, especially in a tank attack,

(2) to conceal an advance from observation or machine gun and rifle fire from the front or from the flanks.

(3) as a feint to distract the enemy's attention.

Smoke shell may be usefully employed to mark the flanks of a position to be attached; or if necessary to indicate that a barrage is about to advance again.

*Precautions necessary.*—The commonest cause of failure in military operations is perhaps loss of direction; therefore if the smoke screen is too thick or blows back towards our attacking troops, failure is likely to occur. The most favourable conditions are a wind of 8 to 9. m. p. h., blowing in the direction of the attack.

Generally speaking, the best results for a smoke screen are given by high barometer, as pressure is necessary—low wind—moist and cool atmosphere. The secrecy of permanency in the smoke cloud is to build it up rapidly with a high rate of fire and then maintain it as required at a reduced rate.

*Lewis Guns, Rifles and escorts.* The action of Lewis guns (not yet authorised for artillery in India) and rifles in the defence has already been dealt with. When available Lewis guns should accompany batteries and sections pushed forward in support of the infantry.

*Protection.*—On the march artillery owing to its inability to defend itself, requires protection, which is provided by the other arms under the orders of the Commander of the Force to which the artillery belongs. On the field of battle, artillery will generally be protected by the distribution of the other arms.

When, however, guns are in an exposed position and an escort is considered necessary, it is the duty of the Artillery Commander concerned to apply to the Commander of the nearest troops who will provide an escort.

*Liaison.*—The primary duty of an Artillery Commander is to command and fight his unit. If the position in action from which he can best accomplish this coincides with that of his corresponding Infantry Commander, liaison is automatic.

## **Artillery in the Field.**

This is always preferable; if not, liaison must be performed by a suitably selected officer and not the Artillery Commander, necessary communication being always established.

The above is perhaps a definition of the duties of an Artillery Liaison Officer, but liaison as a general subject has a wider significance. Where it is firmly established between infantry and artillery, reliance, confidence and trust between the two arms will follow automatically.

This is a very important matter and goes far towards obtaining success in battle.

In formations where the infantry and artillery are unacquainted with each other, recriminations such as short shooting, etc., are not unheard of; but in units where true liaison exists, such is not the case, because the infantry through knowing their artillery, have confidence and reliance in their work; they realise that mistakes will occur sometimes, and my experience is that the infantry on such occasions are conspicuously generous in their behaviour, provided they know their artillery. This liaison can only be produced by officers of artillery and infantry visiting each other frequently, both on and off duty. As the results are so far-reaching, this procedure should be enforced.

*Shrapnel* versus *H. E.*.—Arguments on the merits of both these nature of shell, as a man-killing projectile, have of late been common. The introduction of the 106 fuze in my opinion was the deciding factor, and to-day the school favouring *H. E.* are in the ascendant.

The pro's and cons are briefly as follows:—

*Shrapnel*.—When correctly burst, has greater searching power and its cone of dispersion is larger than that of *H. E.*, hence fewer guns may possibly perform the task in hand.

*H. E.*.—No complications over the Angle of Sight.

All fuze setting is eliminated.

As much firing is done at night and in the early morning, when the light is difficult, this last is an enormous advantage.

Infantry prefer seeing our shells bursting in front of them, to hearing them burst over their heads and possibly behind them.

With true detonations, obtained through using 106 fuze, the moral effect of H. E. is considerable; as a man-killer its supporters claim that it is in no way inferior to shrapnel.

The impression may have been conveyed that the principles put forward above are applicable only to the recent operations in France and Flanders, but this is most emphatically not the case, the governing principle of the employment of artillery is always the same, *viz.*, to ensure the freedom of action of its own infantry and this established principle must hold good equally in all theatres of war.

The effect and power of modern artillery is not yet universally understood; this has to be seen before the power of its fire effect can be properly appreciated.

It is the duty of those who have gained this experience in war to teach the lessons gained therefrom; so that the necessary doctrine may become familiar to all.

*Concluding remarks.*—You, Gentlemen, have been nominated and selected to undergo a course of training at Quetta Staff College, with a view of giving you further military training, so that in due course you may be qualified to fill important posts on the General and Administrative Staff, and eventually to hold high commands.

Your course of instruction here, as you know, is in the hands of the Commandant of this College and is not my concern. What interests me at present is, that you may have gained some knowledge of the principles governing Artillery Tactics from the points I have discussed with you and endeavoured to explain to you.

There is nothing new about fighting, the old principle of the destruction of the enemy's forces in the field, holds equally today, as it has in the past and will in the future, and must always be the aim of every Commander. Victory by no means always goes to the big battalions, but rather to the Commander who knows when and how to produce the necessary fire effect.

## **Artillery in the Field.**

In armies of today and of the future, will be found a powerful modern artillery, capable in all respects of producing this fire effect.

The Commander who knows how to use this powerful adjunct, and understands how and when to put his whole strength into the fight, must always be a powerful opponent and one who may reasonably count on achieving success.

One factor, *viz.*, that of surprise, remains unaltered and will always hold its value. Therefore secrecy in concentration, surprise in attack, and vigorous exploitation of success, are of paramount importance and must be sought for.

I have repeatedly kept in front of you that the main rôle of artillery is to maintain the mobility and offensive action of its own infantry. I have endeavoured to lay before you some of the duties of both "G" and "Q" Staffs, in connection with the employment of artillery.

Study the use and tactics of artillery. There is no black magic about it. The principles of its tactical employment in the field are easily mastered.

For all technicalities, such as angles of sight, clearing crests, laying out lines of fire, etc., an Artillery Commander is provided, and such details are for him to wrestle with.

If in your leisure moments you find time to study these details so much the more complete will your knowledge be, and you will further be in a position to realise and understand some of the gunners' difficulties, but I do not go so far as to state that such artillery technical knowledge is necessary for a Staff Officer.

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## **BRITISH ARMY ADMINISTRATION FROM 1854 TO 1912.**

BY LIEUT.-COLONEL H. M. ALEXANDER, D. S. O.

In view of the impending deliberations of Lord Esher's Committee to consider the Administration of the Army in India, a short history of the development of the Administration of the British Army during the sixty years prior to the European War may be of interest.

The administrative state of the British Army in 1854 at the outbreak of the Crimean War can only be described as chaotic.

For some years all progress had been obstructed by the ultra-conservatism of the Duke of Wellington, and it was not until his death in 1852 that it became possible for any real reforms in Army Administration to be put in hand. As a strategist and tactician the Duke was acknowledged to be supreme, but as an administrator he was a determined opponent of reform, and the great confidence reposed in him by the nation tied the hands of all would-be army reformers of his time.

In 1854 the Duke of Newcastle combined the offices of Secretary for War and Secretary for the Colonies, but his responsibilities in the former office were never definitely laid down and were of the vaguest description. He had no separate office for his War duties and no regular military advisers. Small wonder then that the conduct of the Crimean War should have brought to light the hopeless confusion of army affairs at that time. The management of the army was in the hands of no fewer than seven separate departments.

1. The Secretary for War and the Colonies.
2. The Commander-in-Chief.
3. The Secretary *at* War (whose duties were quite distinct from those of the Secretary for War).
4. The Treasury.
5. The Master General of the Ordnance.
6. The Home Secretary (partly but not wholly responsible for the Militia).
7. The Board of General Officers for the inspection of clothing.

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These departments were entirely independent of one another, kept in touch only by correspondence and had no common responsibility to anyone. To go into the exact duties of each of the seven departments would take too long for the scope of this article. Suffice it to say that they over-lapped continually, that their duties were most indefinitely understood, and that there was no one head, who could authoritatively co-ordinate the proceedings of the various departments. In June 1854 a step was taken towards producing some proper control of the Army by separating the office of Secretary for War from that of Secretary for the Colonies, and in 1855 the offices of Secretary for War and Secretary at War were combined. From this time on the control of the Army gradually vested in the War Department and the Department of the Commander-in Chief, the other departments either disappearing or becoming subordinate. In 1856 the Duke of Cambridge became Commander-in-Chief and at once began a campaign of rivalry with the Secretary of State for War which, to the great detriment of army efficiency, lasted throughout the thirty-nine years during which he held office. The changes introduced in 1859 were of sufficient importance to merit a brief description. Considerably more power of an executive nature, chiefly with regard to the Artillery and Engineers, was given to the Commander-in-Chief at the expense of the former Inspector-General of Fortifications and Director General of Royal Artillery, both of whom had been previously very important officials. A permanent Defence Committee was formed and an Inspector-General of Volunteers was appointed to look after the largely augmented volunteer force.

In 1866 a Committee under Lord Strathnairn enquired into the condition of the Supply and Transport Services and recommended in its report the appointment of a Controller-in-Chief at the War Office, to have control of the executive department of supply. Previous to this these services had been sadly neglected and were entirely lacking in proper organization, a defect which was acutely felt during the Crimean campaign, and led to disastrous consequences.

## **British Army Administration from 1845 to 17 1912.**

The recommendations of Lord Strathnairn's Committee were accepted and adopted by Sir John Pakington, then Secretary for War, who made the newly appointed Controller-in-Chief a second Military Under Secretary of State as well. The Army was thus represented in Parliament by a Secretary of State for War and two Under Secretaries. A civilian financial adviser was also appointed. Thus when in 1868 with the advent of Mr. Cardwell to the War Office the problems of Army Reform were really seriously tackled, the state of affairs was that the control of the Army was divided between the Secretary of State and the Commander-in-Chief, with the greater power in the hands of the former.

Mr. Cardwell was appointed to the War Office when Mr. Gladstone's Ministry came into office in 1868, and since his work there has left its mark for all time on the history of the Army it deserves to be set forth in some detail.

Mr. Cardwell's first principles were that the Secretary of State for War must be supreme in army matters in the same way that the First Lord of the Admiralty was in naval affairs; and that the union of finance and administration must be secured by the assignment to him of military as well as financial advisers. He at once reduced the status of the Commander-in-Chief by making him one of three equal officials, the Financial Secretary and the Surveyor General of the Ordnance being the other two. This naturally did not suit the Duke of Cambridge, who complained bitterly to Queen Victoria that the control of the Army was passing under this regime from the Crown to Parliament.

From 1868 to 1874 Mr. Cardwell was hard at work improving the organization of the Army. First and foremost he created what had not existed hitherto, a really useful army reserve. This was brought about by the introduction of a system of short service, six years with the colours and six years with the reserve. By the light of after events this would be considered quite long service, but at that time it was very much the reverse. Previously enlistment had been for 21 years with the colours with no reserve service at all, and if Mr. Cardwell had done



nothing else during his term of office his Army Enlistment Act of 1870 would have made his name famous in the annals of the Army. He also recognized the extravagance and futility of keeping large forces of Imperial troops in the Colonies, and these he withdrew to a large extent, thereby greatly decreasing the cost of upkeep and laying the foundation of what afterwards became an effective expeditionary force. He maintained "*in toto*" the existing cadres, but reduced the expanded units, maintaining the strength of the army for war without the unnecessary expence of keeping it at its full strength during peace time. The saving on this head amounted to over a million of money, a figure which at that time was regarded as substantial.

Further Mr. Cardwell insisted that the Army, including the Auxiliary Forces, should be armed with the latest pattern of breach-loading rifle; and increased the number of field guns from 70 to 180, still further augmenting them after the outbreak of the Franco-Prussian War to 240.

The next drastic change introduced by Mr. Cardwell was the abolition of the pernicious system of army purchase, which was a relic of the days when the King, requiring money for the up-keep of an Army in excess of that sanctioned by Parliament, had called upon his officers to provide it by paying large sums for their commissions and promotions. Reformers had long recognized the evils of the system which was prejudicial to discipline and absolutely prevented the recognition of merit or the advancement of the non-wealthy, and had endeavoured to abolish it, but had always been met with determined resistance from the officers of the old school headed by the old Duke of Wellington. Mr. Cardwell met with precisely the same opposition, but overcame it signally, for failing to get the reform through Parliament, he obtained the consent of the Queen to the abolition of purchase by an Order in Council. The abolition of purchase was accompanied by two other changes of some importance, namely the transfer of control over the

## **British Army Administration from 1845 to 1912.** 19

Militia, Yeomanry and Volunteers from the Lord Lieutenants of Counties to the Queen, and the granting of control over the railway system to the War Department in case of threatened invasion. The Bill introducing these reforms was passed after stubborn resistance in 1871 under the name of The Army Regulation Act.

An Intelligence Department which has since proved its usefulness was created in 1873, and this brought to a successful conclusion the Cardwell administration.

It is a noteworthy fact that the Army Estimates at the conclusion of the Cardwell reforms were no fewer than two millions less than in the year previous to Mr. Cardwell's taking office, a vindication of the theory that efficiency ultimately produces economy.

When the Gladstone Ministry resigned in 1874 the Army after six years of stress and reform enjoyed a period of administrative peace, only interrupted by the controversy between the Commander-in-Chief and Lord Derby on the subject of linked battalions, finally settled by the adoption of the system, unquestionably to the advantage of the Army.

Between Mr. Cardwell's time and 1912 there were eleven Secretaries of State, few of whom left their mark on history. Mr. Childers and Lord Derby carried on Lord Cardwell's good work, but introduced no striking reforms of their own.

In 1888 Lord Hartington presided over a Royal Commission to enquire into Army Administration and recommended drastic changes, which need not be enumerated at this point since none of them were adopted, although in 1904, when the Esher Commission sat, a practically similar report was adopted almost in its entirety. The next important event was the almost forced resignation in 1895 of the Duke of Cambridge, which cleared the way for further reforms. The Duke of Cambridge had served his country loyally and well, but had had always at the back of his mind the opinion that the Army was for the Sovereign and not for the Parliament, a doctrine reminiscent

## 20 **British Army Administration from 1845 to 1912.**

of bygone ages, which hampered reform. The opinion was based on the History of a time when Sovereign and Parliament were at variance always, and was out of place in a reign when the interests of both Sovereign and Parliament were for the most part the interests of the country.

In 1898 a Committee to consider the decentralization of War Office business sat under the presidency of Mr. Brodrick and made many excellent proposals, the carrying out of which was interfered with by the outbreak of the Boer War.

Like all other wars the Boer War of 1899-1902 brought to light many defects in army administration, and it dealt a death blow to the system of dual control. The War Commission gave rise to a heated controversy with regard to their respective responsibilities between Lord Lansdowne, the Secretary of State for War, and Lord Wolseley who had succeeded the Duke of Cambridge as Commander-in-Chief. On the resignation of Lord Lansdowne which followed, Mr. Brodrick became Secretary for War and Lord Roberts Commander-in-Chief, and a further commission under Lord Esher was appointed.

Mr. Brodrick's most striking reform was the introduction of a still shorter term of enlistment, three years with the Colours, and nine years with the reserve. Though doubtless this built up the depleted reserve, it was not a success and was very unpopular in the army, it being felt that men could be neither trained nor disciplined in so short a time, an opinion which later events have proved untenable. Mr. Brodrick gave *carte blanche* to, and accepted unreservedly the recommendations of, the 'Esher Commission' for which the thanks of the Army are no doubt due to him. He introduced also the Army Corps system and redistributed the troops at home. It was perhaps merely the irony of fate that his name should only be associated by the rank and file of the old army with the invention of that ungainly and uncomfortable head-dress the "Brodrick Cap", and with the creation of the three-year soldier (known as the "Brod").

It fell to the lot of that enthusiastic amateur soldier Mr. Arnold-Forster to carry into effect the Esher recommendations

## **British Army Administration from 1845 to 1912.** 21

which, (perhaps rather fortunately) over-shadowed his own well-intentioned but misguided schemes. Briefly the following were the Esher proposals—

1. The formation of an Imperial Defence Committee to be presided over by the Prime Minister and consisting of certain members of the Cabinet, two officers each to represent the Navy and Army and two representatives each of India and the Colonies. The Committee to meet as required, and its proceedings to be kept strictly secret.
2. The position of the Secretary of State for War to be placed on precisely the same footing as that of the first Lord of the Admiralty, and all submissions to the Crown in regard to military questions to be made by him alone.
3. The constitution of an Army Council following the general principles which prevail at the Admiralty, consisting of the Secretary of State for War, four Military Members with specific duties allotted to each and two Civil Members with a military officer as permanent Secretary.
4. The abolition of the office of Commander-in-Chief.
5. The divorce of administration from executive command and the decentralization of the latter.
6. The appointment of an Inspector General to report upon actual facts without expressing opinions upon policy, and to be located outside the War office.

These drastic changes worked well, though there are still many clever and well-informed persons who regret the disappearance of the office of Commander-in-Chief and would like to see it revived.

When the Liberal Government came into power in 1906 Mr. (now Lord) Haldane was appointed to the War Office and at once set to work to tackle the question of reorganization of the Auxiliary Forces. The old militia and volunteers disappeared from the Army List, and were replaced by the Territorial Army

with its Special Reserve, and Officers, Training Corps. Lord Haldane went back to the longer term of service (7 years with the Colours and 5 years with the reserve) keeping the shorter enlistment only for special corps. He established a fully equipped and always ready Expeditionary Striking Force and organized the home Army by divisions instead of by Army Corps, a more wieldy arrangement. A reduction of some 12 battalions of infantry was made, not even the cadres being retained, and there was some reduction also in the artillery which was severely criticized.

This then was the state of affairs when in 1912 Lord Haldane relinquished the office of Secretary of State for War on his appointment as Lord Chancellor. It is early yet to judge the real extent to which his administration benefited the Army in the light of the teachings of the Great War; but there can be little doubt that he created the nucleus our great Civilian Army and made possible the prompt despatch to France in August 1914 of a fully trained and equipped Expeditionary Force. That these two factors played a vital part in saving the United Kingdom from invasion and defeat, and Europe from Military despotism can hardly be disputed, and it is fairly safe to predict that historians of the great war will give due credit to Lord Haldane and will rate him with Cardwell amongst the greatest of army administrators.

In recent years events have moved so fast, and circumstances have been so completely changed by the development of the science of war at a pace undreamt of, that the task of reviewing the administrative changes which have been made cannot yet be undertaken from a proper perspective.

In India as at Home much reorganization has been undertaken concurrently with carrying on war on many fronts, and the administrative machine has been taxed to the utmost. Lord Escher and his colleagues have before them a task of great magnitude and difficulty, and their recommendations will be awaited by the Army with the keenest interest.

## **ACTION AT BAGH SPRINGS AND KHARGALI HEIGHTS, ON 11TH MAY 1919.**

*Brief summary of events leading up to action. (See plan attached).*

On the 4th May Afghan troops supported by large bodies of tribesmen were reported to have taken possession of the Bagh and Tangi springs between Landi Kotal and Landi Khana and to be on the Spinatsuka and Tor Sappar ridges to the North of Landi Kotal.

On the 5th May a small column consisting of one section Mountain Artillery (3.7 Hows), one Section Sappers and Miners and 400 Infantry proceeded in lorries from Peshawar to Landi Kotal to support the Khaibar Rifles.

It was essential that the Afghans should be driven from the Bagh and Tangi springs as quickly as possible, as on one of them depended the principal water supply of Landi Kotal and until the springs were in our possession, no large force could be concentrated at that place.

The 1st Division (Major General C. A. Fowler, C. B., D. S. O.), was therefore ordered to drive the Afghans from these springs.

In accordance with these orders the 1st Division began moving up the Khaibar, and by the evening of the 8th May the following troops had concentrated at Landi Kotal under the command of Brigadier-General G. D. Crocker (G. O. C. 1st Infantry Brigade.)

H. Q. 1st Infantry Brigade.

2nd Somerset Light Infantry.	} 1st Infantry Bde.
1-15th Sikhs.	
1-35th Sikhs.	
1-9th Gurkhas.	

1-11th Gurkha Rifles from 2nd Infantry Brigade.

2 Troops 30th Lancers.

77th Howitzer Battery, R. F. A.

No. 8 Mountain Battery, R. G. A.

1 Special Section 3.7 Hows. from No. 6 Mountain Battery.

No. 263 Company Machine Gun Corps.

### ***Action at Bagh Springs.***

No. 7 Company, 1st S. & M.

400 Khaibar Rifles

On the morning of 9th May the 2-123rd Rifles (2nd Infantry Brigade) joined General Crocker having marched from Jamrud during the night.

General Crocker assisted by aeroplanes attacked the enemy on the morning of the 9th and secured the Tangi springs and water works; but he encountered strong opposition and the force at his disposal was insufficient to drive the Afghans from their strong position, in difficult mountainous country, covering the Bagh springs.

Next day the remainder of the 2nd Infantry Brigade (Major General S. H. Climo, C. B., D. S. O.) consisting of 2nd North Staffordshire Regiment.

2-11th Gurkha Rifles

(Note.—1-11th Gurkha Rifles and 2-123rd Rifles had already arrived),

also 285 Company Machine Gun Corps, and 1 section No. 6 Mountain Battery reinforced the troops at Landi Kotal where General Fowler had assumed command. Headquarters and 1½ battalions 3rd Infantry Brigade (Major General A. Skeen, C. M. G.) were ordered to march from Ali Masjid before dawn so as to reach Landi Kotal by 6. 30 A. M. on the 12th.

#### ***Appreciation of situation on 10th May.***

2. General Fowler decided not to wait for further reinforcements but to attack the enemy on the 11th as enemy reinforcements were undoubtedly arriving; the indecisive attack on the 9th had exercised little effect on the morale of the enemy; the attitude of the tribesmen in independent territory showed that it needed but little to make them go over to the enemy, and finally a picquet of the Khaibar Rifles deserted. The situation therefore demanded instant action.

#### ***Troops available.***

3. General Fowler had at his disposal for this attack the following troops:—

One Howitzer Battery, R. F. A.

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One Battery and one section Mountain Artillery,  
One Special Section 3.7 How. Mountain Artillery.  
Two troops of Cavalry.  
Two Machine Gun Companies.  
Two Brigades and 1½ battalions of Infantry.  
400 Khaibar Rifles.

Of this force the Cavalry, one battalion of infantry and a section of Machine guns were required to protect Landi Kotal from an attack from the direction of Spinatsuska or Tor Sappar, where the enemy was known to be in strength, while the 1½ battalions of the 3rd Infantry Brigade would only become available at 6. 30 A. M. after a march of 10 miles from Ali Masjid.

Battalions were also very weak, averaging only about 450 rifles, and the Machine Gun Companies, owing to shortage of personnel, could only man 18 guns between them.

#### ***Enemy's position.***

4. The strength of the enemy was estimated at 6,000 to 8,000, mostly regulars, with at least a battery of mountain artillery and some quick firing machine guns.

The position occupied by the enemy was in the form of a crescent of hills covering the Tangi nullah and Bagh springs. The plan of attack on the 9th had been to pierce the crescent; after a personal reconnaissance the G. O. C. decided to attack the Southern horn of the crescent on the 11th, and having secured this, to advance along the hills joining the crescent.

Orders were framed with this end in view and all objectives were pointed out on the ground to Commanding Officers concerned.

1st DIVISION OPERATION ORDER No. 1

LANDI KOTAL.

10th May 1919.

#### ***Reference Map Khaibar and the Adjoining Country.***

(1) The Division will advance tomorrow (11th May) and will occupy the ridge about L. 7 8-8 commanding the Bagh Springs as a first objective. All attacks are to be pressed home.

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### ***Action at Bagh Springs.***

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### ***Action at Bagh Springs.***

(2) The 2nd Somerset Light Infantry will march at 04.30 hours to occupy and picquet the ridge parallel to, and south of Suffolk hill, after which they will occupy hill in L 8 3-8.

(3) As soon as the Somerset Light Infantry have secured this hill, the 2nd Infantry Brigade will advance and secure the ridge commanding the Bagh Springs.

(4) When all is in readiness orders will issue for artillery to open fire for 15 minutes on the above mentioned ridge, during which time a steady rate of fire will be maintained, and the 2nd Infantry Brigade will advance.

(5) Machine guns are allotted as under:—

From No. 263 company, Machine Gun Corps.

4 guns to Summerset Light Infatry.

2 guns to 2nd Infantry Brigade.

From No. 285 Company, Machine Gun Corps.

2 guns to 1-9th Gurkha Rifles.

4 guns in position near Michni Kandao.

2 guns in Divisional reserve at Suffolk hill.

(6) The Khaibar Rifles will maintain their present picquet line and co-operate with the attack north of the Landi Kotal-Dakka road.

(7) The General Officer Commanding 1st Infantry Brigade will command the present line picquets and will be responsible for Landi Kotal Fort.

(8) Headquarters 3rd Infantry Brigade with 1½ Battalions, on arrival from Ali Masjid at 06-30 hours will come into Divisional reserve at General's camp.

(9) Until arrival of 3rd Infantry Brigade the 1-9th Gurkha Rifles will be in Divisional reserve at General's camp, but so soon as the 3rd Infantry Brigade arrives this Battalion will come under orders of 2nd Infantry Brigade.

10 No. 7 Company 1st Sappers and Miners will be employed on water supply.

(11) Divisional Headquarters will be established on Suffolk hill at 06-00 hours.

*Account of Action.*

## **Action at Bagh Springs.**

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5. -(a) The Somerset Light Infantry with one section No. 263 Machine Gun Company left camp at 04-30 hours and had picquetted the ridge parallel to and South of Suffolk Hill without opposition by 06-00 hours. By 06-30 hours the S.L.I. were climbing Rocky Spur and by 07-40 hours had reached their final objective on the Western end of the Spur, meeting with only slight opposition. On reaching their final objective they came under heavy fire, their Commanding Officer (Lt.-Col Worral) being wounded.

The position enabled them to bring enfilade fire to bear to cover the advance of the 2nd Brigade.

At 07-15 enemy's guns opened fire on Suffolk Hill, but were quickly engaged by the Section of Mountain Guns on Suffolk Hill and rapidly silenced after a short but exciting duel. The Afghan shells were all percussion, and burst well on impact, but caused no damage.

(b) In the mean time the 2nd Brigade was moving into its position for deployment, while guns and machine guns were registering in preparation for the attack.

At 07-30 hours Headquarters and 1½ battallion 3rd Infantry Brigade reached Landi Kotal and came into Divisional reserve at "General's Camp".

The guns were in position as shown on sketch and were in telephone communication with Divisional Headquarters on Suffolk Hill.

(b) By 08-35 the attacking troops were in position and the signal was given for the Artillery to open fire on the first objective allotted to the 2nd Brigade, while machine guns opened fire on the targets allotted to them.

Under cover of this fire, and of the enfilade fire brought to bear on the enemy's position by the Somerset Light Infantry, the 2nd Brigade advanced against their first objective which was strongly sangared and held by the enemy.

At 08.48 hours the 2nd Battalion North Stafford Regt. which was the leading regiment of the 2nd Brigade moved out from the 15th Sikhs, support trenches, and during their advance

**Action at Bagh Springs.**

came under oblique fire from the Kafir Kot ridge. The advance was carried out slowly and methodically with great determination as if on parade, and by 09.35 the North Staffords had reached the top of the rocky cliff which formed their first objective. On topping this rise, they came on some of the enemy who were so fully engaged with the Somersets on the opposite side of the nullah that they had not seen the advance of the 2nd Brigade. Some dozen tried to bolt, but were wiped out to a man, and others who held on to their sangars were finished off with bomb and bayonet.

(d) Behind the North Staffords came the 2nd-11th and 1st-11th Gurkhas who swung off to the right as the North Staffords approached their first objective and moving past and above Bagh Springs went towards Khargali village. The Gurkha advance was carried out with great dash and rapidity. In their advance the 2-11th Gurkhas captured four enemy guns with two complete horse teams, bayonetting some Afghan gunners at their guns and occupied their objective at 10.53 hours.

(e) At 10.55 the 2nd-123rd Rifles were moved forward to support both Gurkha battalions; the 1st-11th Gurkhas passed across the right rear of the 2nd-11th Gurkhas and at 11.00 hours this battalion had occupied the ridge above Bagh Springs and the Kafir Kot ridge.

(f) At 12.30 the 2nd-123rd Rifles and 1st-11th Gurkhas were ordered to attack and occupy Khargali Fort and village. This operation, well supported by the whole of the artillery, was carried through with little opposition, and both fort and village were captured by 14.00 hours.

(g) As the attack progressed, resistance became weaker and the enemy was observed to withdraw, first by twos and threes and afterwards in larger parties, both by the passes over the Darband ridge, and down the main Landi Khaua-Dakka valley.

(h) The artillery followed up the retreating enemy with their fire No. 8 M. Battery on Pisgal having been so placed as to enfilade the nullah west of Khargali village, which was the enemy's main line of retreat, and the enemy's casualties here are believed to have been heavy.

## **Action at Bagh Springs.**

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(i) The Khaibar Rifles, who had been co-operating North of the Landi Kotal-Landi Khana road, also moved down this ridge and added to the discomfiture of the enemy by their fire.

### **Reasons for Success.**

6. The success of this operation was mainly due to the close support given to the infantry during their advance, by the artillery; to this and to the skilful handling of the machine guns must be attributed our very slight casualties. The enemy were unable to observe the advance of our infantry owing to the fire brought to bear on them, and so close was this support that they were surprised in their position and were unable to escape. In several cases they sought concealment in holes in the rocks and were destroyed by bombs and bayonets; those who attempted to escape being shot down at close range.

### **Enemy casualties.**

7. The enemy's casualties were heavy and are estimated at 120 killed and 500 to 600 wounded. The majority of dead bodies were those of regular Afghan troops. Seven guns were also captured.

The moral effect of this victory both on the enemy and on the independent tribes was very great.

### **Our Casualties.**

8. Our casualties were:—

British officers wounded...2

British other ranks...killed 7...wounded. 36

Indian other ranks.....killed 3...wounded. 9



## **MOUNTAIN ARTILLERY IN 1849.**

(COMMUNICATED BY COL. H. R. GOULDING, LATE COMMANDANT, 1ST PANJAB VOLUNTEER RIFLES).

The following Memorandum, dated December 1849, has been found recently among the records of the Panjab Military Secretariat which was abolished in 1886, when the control of the Panjab Frontier Force was transferred from the Panjab Government to the Commander-in-Chief. The Memorandum was written by Major (afterwards Sir James) Abbott, who was Deputy Commissioner of Hazara for many years and after whom the cantonment of Abbottabad was named.

The Memorandum will, perhaps, be found interesting by readers of this Journal, some of whom may be in a position to throw further light on the evolution of the mule battery. It will be seen that Major Abbott's object was to construct a mountain gun which could be *carried* by mules, not drawn by mules or other animals; and in this connection he recommends the adoption of a carriage "invented by His Highness the Maharaja of Jumboo. The gun goes upon one mule; the carriage bodily upon another. Thus not only is one mule saved, but the necessity also of shipping and unshipping the wheels."

As regards the construction of a gun suitable in all respects for mountain warfare, it is worth noting that Major Abbott cast and bored a brass gun at Hazara, at his own expense, in accordance with his own specifications (*vide* sketch). He mentioned this in the letter with which he submitted his proposals to the Panjab Board of Administration. A full description of this gun and of the advantages claimed for it are given in the Memorandum. The Siamese-twin-like device proposed for the balls to be fired from the gun is novel. Major Abbott's objections to conical projectiles and his remarks about "rolling" after "grazing" when fired in the plains, make curious reading in these days. Ricochets were considered preferable to direct hits.

In sending on Major Abbott's Memorandum to the Govt. of India, the Board of Administration remarked that they

agreed with Major Abbott in much that he urges in favour of mountain guns that are light and of a greater range than those hitherto used by us, and would recommend that a trial of his scheme for rifled mountain ordnance be made." But, notwithstanding that Major Abbott had made his experiment at his own expense, the Secretary to the Government of India, Sir Henry Elliot, K. C. B., replied that "the Governor General declines to engage in any experiment on this subject at present and requests that the Deputy Commissioner may not cast and bore any more guns without asking and obtaining leave." This cold douche reminds one of the charge so frequently brought against the War Office in modern times.

#### **PROPOSED IMPROVEMENT TO MOUNTAIN ORDNANCE.**

Of the value of a Mountain Train in mountain warfare, experience has given abundant proofs. Isolated positions, scarcely assailable by the bayonet alone, may be overawed or rendered untenable by the fire of artillery. Without this engine, many a hostile post may be commanded in vain by a higher position; distance nullifying the effect of musketry. But in the mountains of Afghanistan, the necessity of artillery to the success of a campaign is especially manifest, for the defenders of those formidable Passes are armed with rifled pieces, carrying four-ounce balls and telling with deadly certainty to a distance of 400 yards. At the siege of Herat, the Persian artillery, admirably drilled, could not serve their guns in battery at 400 yards, owing to the deadly fire of the Herat *Jezzailches*. But the actual effect of artillery in a mountainous country is, perhaps, its smallest recommendation. The fear of this engine imprest on wild tribes is the real instrument of its power. It seems important that this fear should be maintained, by giving to our own mountain ordnance the greatest possible facility of ascent to commanding positions, and the most deadly possible certainty of effect.

2. The necessity of being provided with a Mountain Train in case of hostilities with our only formidable neighbours, the Nepalese and Afghans, admits not, I think, of question. But

the nature, figure, weight, transport, etc., of such ordnance is all open to discussion. The weight of the ordnance must, of course, be determined by the nature of the transport, which may be divided into three kinds—draught by mules or gallop ways, carriage upon elephants and carriage upon mules.

3. To the system of draught there are very important objections. The fire of guns from a valley upward to the mountains is in effect utterly null, and for such purposes field guns of ordinary dimensions are generally available. A gun calculated for draught must, beside the harness of the mules, have a limber for each gun, unless indeed movable shafts were contrived to fit upon the trail of the piece. This limber must either be left behind when the gun ascends the mountain or must accompany it, requiring at least 2 mules, and the shipping and unshipping of the wheels would add greatly to the delay. It would indeed very nearly double the necessary carriage and the trouble of moving. Whether the gun be drawn or carried, the ammunition would, of course, *always* be carried upon mules.

4. Elephant carriage wherever practicable is attended with the great advantage of having the gun ready fitted for action; the gun, carriage and wheels all going together upon one elephant. In moderately rough and open ground, the elephant may be used with advantage, as, for instance, in the broken table-land of the Sindh Sagur Dooab. But amongst mountains, I regard the elephant as almost ineffective, the slowness of his pace scarcely enabling him to complete a march of eight miles from sunrise to sunset of the winter season; and his forage being often wholly unprocurable amongst the mountains.

5. I should, therefore, give a decided preference to the mule, which can clamber over tracts impassable by elephants, can move at three times his pace and can always pick up his own fodder upon the mountain side.

6. Now the ordinary load for an ordinary mule amongst the mountains is 2 Lahori *maunds*, or about 2 *maunds* 16 *seers*,

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to have an mountain writer. To ensure this, a room pro-  
posed to fire the barrel in two grooves and to reduce the diameter  
of the shot, and with it the resistance of the atmosphere, by cast-  
ing double shot connected by a slight neck or adhesion, one of

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6. Now the ordinary load for an ordinary mule amongst the mountains is 2 Lahori *maunds*, or about 2 *maunds* 16 *seers*,

or 192 pounds, and as the Government mules are of superior size and strength, 2 cwt. or 224 pounds may be safely determined upon for the weight of the piece. The trail and axle should not exceed that weight and the wheels may be considerably lighter. It were advantageous, I think, to form them of wrought iron.

7. The gun itself travels upon a saddle having two iron grooves to receive it and rings by which to lash it securely, in case of accident to the two leather thongs (running in buckles) which ordinarily hold it steady. The trail (I should recommend a block trail) is packed with more difficulty and, owing to its length, is always an awkward burthen for a mule. It should not be separated from the axle-tree. So much difficulty attends the carriage of this article that I should almost recommend a contrivance for jointing it, that it might be carried in two parts. Were the trail and axle of wrought iron, this might be easily contrived. The wheels should not exceed in diameter  $2\frac{1}{2}$  feet. They are slung over the third mule. The axle should not exceed 3 feet or it becomes awkward upon the mule's back. The trunnion sockets should rise greatly to the rear, that the gun be not thrown out of its carriage when very greatly depressed. The axle-tree bolts should be of extraordinary strength to bear concussions disproportionate to the weight of the ordnance.

8 Two hundredweight being the maximum limit of weight for the gun itself, it becomes a question of extreme interest how to dispose of that weight to the greatest advantage. Field guns upon trial prove extremely unsteady when they have less than 1 cwt. of metal in the piece for every pound of the shot. In other words, when the piece is less than 112 times the weight of the shot. This rule would make the mountain gun a 2-pounder. But it is well known that the range of such a piece of ordinary construction is very limited, and length of range is of essential consequence in mountain warfare. To ensure this, I would propose to rifle the barrel in two grooves and to reduce the diameter of the shot, and with it the resistance of the atmosphere, by casting double shot connected by a slight neck or adhesion, one of

**8** which would have ridges to fit the grooves of the rifle, the other being plain. The shot would fly with the effect of a metal of double the specific gravity of iron, like a ball of platinum or of gold. On impinging upon any hard substance, it would divide into two balls, each having the velocity of the whole. In order to increase this effect to the utmost, I would employ leaden balls hardened by a slight admixture of tin or of arsenic. The objection to the conical bolt, as indeed to any figure excepting the sphere, is that it will not roll upon a plain to any great distance. The chief power of artillery is, therefore, sacrificed in employing it in plain countries; for, of 100 balls that take effect, probably 90 do so after grazing. This consideration might seem an objection to the use of lead as liable to flatten on reaching the earth, and undoubtedly it were an objection as relates to ordinary field ordnance, but amongst the mountains, shot do not roll. They are arrested by the rocks on the spot where they first impinge.

9. Now the diameter of a cast-iron shot of 2 lbs. is 2. 1316 inches, giving a surface of resistance to the atmosphere of 3. 5686 square inches. But the diameter of a 1 lb. ball of lead is only 1. 69, and the surface of resistance is only 2. 2431. The double shot will therefore retain at the distance of yards 356 the same momentum as, with an equal charge, the 2 lb. cast-iron shot would retain at 213 yards. Or again, cast-iron shot, yards 639; equal to leaden shot, yards 1068. The steadiness communicated to the double shot by the rotatory motion upon its axis, whilst preventing the possibility of its moving otherwise than as it lay in the piece, would give a certainty to the aim that would make it formidable even at long ranges. I have no doubt that such a shot might be impelled with good effect a distance of 800 yards.

10. At the same time, the great diminution of calibre would allow of increased length to the piece and remedy in some measure an important defect in our field ordnance.

11. The neglect of the rifle principle, as applicable to field ordnance, is easily accounted for. Field guns are ordinarily em-

ployed upon large masses, at short ranges. It is, therefore, of more importance to ensure celerity in working them than very great precision in their fire. But the very reverse is the case with the mountain gun. It is seldom used at short ranges or upon palpable masses. The distances are always very long, the enemy are scattered amongst rocks and bushes. If they find the fire of artillery utterly innocuous, they will in time learn to despise it. The delay in loading a mountain piece is of small importance, provided that the fire be effective; and, with proper management; this delay ought not to be very sensible, as the grooved shot will require little force to ram it home.

12. In the use of grape and shrapnel there is no reason why this piece should not throw 3 lb. cases of either. The shrapnel could be contained in a pointed cylinder, with ridges for the grooves.

13. By giving the grooves only one quarter turn in the barrel, the charge might be increased to any pitch, without tearing away the ridges of the shot.

14. The cartridges would be made up as for ordinary field artillery, i. e., the powder and shot in one bag, black stripes being made along the cartridges, over the ridges of the shot, to aid the loadsman in adjusting it to the groove; and deep indentures in the muzzle of the piece forming channels to the grooves. With every such gun there might be two carriages, one for draught the other for the mountains; for small as is the piece, its extreme accuracy might render it very useful even in the plains.

15. The mountain carriage of the form I should recommend is that invented by His highness the Maharaja of Jumboo. It has no wheels properly so called. The gun goes upon one mule, the carriage bodily upon another. Thus not only is one mule saved, but the necessity also of shipping and unshipping the wheels. This carriage might be made of wrought iron.

16. The gun being bored for a 1 lb. ball of lead, would carry a double shot of that metal or a triple shot of cast iron, the latter being more serviceable for the plains. Every round would, therefore, under skilful direction, tell as a species of grape



**Mountain Artillery in 1849.**

upon an advancing column, being made to graze 20 yards in front-grape that would be deadly at a distance of 800 yards.

17. The reduction of calibre, here proposed, would be equally valuable in artillery of position. Twelve and eighteen-pounders might have 3 lb. bores, with increased length of gun. Each shot, after grazing, would become a round of most deadly grape formed of 4 or 6 3-lbs. balls of iron which would roll as far as any hostile force extended. It would not answer in musketry, because the subdivided balls would want momentum to carry them more than a few yards.

18. The jointing of the iron trail of a mountain gun might be effected by means of a splice with a sliding collar and pin.

19. To obviate any chance of shot turning after leaving the barrel of a gun not-rifled, it were easy to cast a zone upon the shot near the charge of powder which would render it somewhat lighter than the others and give it additional atmospheric resistance which, by retarding its progress, would prevent the inconvenience apprehended: acting like the feather of an arrow, and would not materially affect the momentum of the entire projectile. (Sd.) J. ABBOTT, Major,

*December 1849.*

*Deputy Commr., Hazara.*

## **SUGGESTIONS ON RE-ORGANISATION OF THE POST-BELLUM INDIAN ARMY.**

By L. C.

The following notes are based on experience including that gained on five fronts in the Great War.

In pre-war days, many Indian Army Officers were of opinion that only certain classes were suitable to stand up to what were then thought to be our possible enemies. Generally speaking, this turned out to be a narrow-minded view.

Training of good and other material depends on the Commanding Officer and his British Officers. If they are imbued with well-directed energy, enthusiasm, and knowledge of their work, they can work wonders with their men. At the same time, it must be acknowledged that what was considered to be the best material has undoubtedly surpassed our expectation.

### *Sepoys.*

That the length of color service be reduced to 10 years, followed by 6 years, Reserve Service, with a pension at the end of 16 years.

~~Suggestion No. 1.~~

The only extensions to the 10 years, color service to be in the case of pukka Non-Commissioned Officers, only at their own request and to 5 per cent. of sepoy at their own request.

It will be acknowledged that present day army service is so strenuous that a "Duty" Sepoy, *i. e.*, one who takes his turn of guards etc., ages quickly, and therefore it is bad policy to keep him longer than about 10 years.

In view of the fact that a real Reserve is necessary, and not one of the pre-war pattern, the monthly pay of a - Reservist should not be a mere pittance, but should be something worth having.

Reservists should be trained for at least six weeks annually, and in the same rank and at the same pay and allowances as are drawn by those with the colors.

The clothing and equipment of Reservists should be on a *pukka* footing.

Reserve service would be a great asset to Government in

### 38 **Re-organisation of the Post-Bellum Indian Army.**

ensuring the loyalty of the many thousands of Reservists spread all over the country. It would be to their interest to be law-abiding, and so they would be opposed instinctively to the political class.

The following true story of the "izzat" of the servant of Government will illustrate the above:—

A Sikh Reservist called up for training in Mandalay many years ago told me that he was ferryman over the Salween River, and that he also kept cows. The local inhabitants quarrelled with him for some reason, so he countered by reminding them that he was a servant of the Great Sarkar, from whom he was expecting a letter shortly. His enemies jeered at this; but shortly after when the Reservist received a big official envelope containing the orders calling him up for training (he had expected this!), they immediately became polite and subservient.

The moral effect of the receipt of a Government allowance or pension is not only beneficial in various ways to the recipient, but also to the state in an indirect way.

I would advocate battalions being 900 strong at present, but as the Reserve increases in numbers I think a battalion's strength in *sepoy*s should dwindle to a minimum of 600. From motives of economy and practical politics one can't have both a strong standing Army and a Reserve.

Included in the *sepoy*s are Lance-Naiks, and the latter should be appointed purely for efficiency. In many units, length of service is a qualification: this should be very definitely abolished.

#### *Classes.*

That no Regt. of Cavalry or Battalion should consist of one  
**Suggestion No. 2.** class only, except perhaps Gurkhas and Garhwalis.

I advocate two or possibly three classes in a unit. It is easier to reinforce two classes in a unit than a one-class unit. The latter, if heavily mauled in action, has to be kept in a back area to reform for a much longer period than the former.

## **Re-organisation of the Post-Bellum Indian Army.** 39

I also advocate that each squadron or company be half one class and half another. The reasons for this are that British Officers tend to become specialised in one class, and unwittingly to favor that one class. When such a Company Commander is transferred to another class company, he is at sea for the time being. If he succeeds to the command of the battalion, he is *thought* to favour one class more than the other.

In war time, one class may display qualities which the other lacks. Again, if a battalion is half one class and half another, it is only logical that the squadrons or companies should be half and half. Also, it pays to do this.

### *Non-Commissioned Officers.*

There is nothing new about this suggestion, but I think  
**Suggestion No. 3.** they are matters which need emphasising.

Names of all lance-Naiks should be kept on one Regimental list, and promotions from it should be made into the class vacancy, whether it be in the same company or not. Similarly, from Naik to Havildar. This would seem obvious, but some units keep promotions up to Havildar in the company. This method narrows selection.

Very few units avail themselves of the Brigade Commander's power summarily to reduce Non-Commission Officer's for inefficiency; and thus they saddle themselves unnecessarily with inefficient men.

### *Indian Officers.*

There have been suggestions that a school for Indian  
**Suggestion No. 4.** Officers should be established. This would be excellent if well run.

Candidates for the school should be Havildars selected from units, and under no circumstances should they ever be posted as jemadars to their original unit.

38 ***Re-organisation of the Post-Bellum Indian Army.***

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## Re-organisation of the ~~United States~~ Army.

I also advocate that a ~~new~~ class and half another. The ~~new~~ Officers tend to become ~~more~~ tingly to favor that one ~~the~~ is transferred to another ~~the~~ time being. If ~~the~~ is *thought* to favor ~~the~~

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There is ~~the~~  
Suggestion to ~~the~~  
Names of ~~the~~  
list, and ~~the~~  
vacancy ~~the~~  
from ~~the~~  
units ~~the~~  
method ~~the~~

The ~~the~~  
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40 ***Re-organisation of the Post-Bellum Indian Army.***

Again, it should be remembered that generally speaking the "educated" Indian is not an influential man in the Army, the great majority of whom are of the ignorant though stout-hearted yeoman class. The "educated" Indian is found in the cities only, whereas the Army is drawn from village folk.

A platoon leader should be of the same class as his platoon, and not of inferior or of another class.

***Land Grants.***

The reward of a grant of land should be made to ex-Army  
**Suggestion No. 5.** men only and not to Civilians.

There is no record so much appreciated as a grant of land. Indian Officers often remark that many more Civilians (Indian) are given grants of land than are ex-Army men. The latter serve for many years in places remote from their homes, risk their lives on active service, are always liable to strict discipline; whereas their civilian brothers, who have never slept a night out of bed, have lived at home, have drawn good pay, get as many and more land grants than they do.

The civilian lives a sheltered life owing to the sepoy's work.

***Efficiency Pay.***

**Abolish Good Service Pay for Non-Commissioned Officers and**  
**Suggestion No. 6.** Good Conduct Pay for sepoys.

Substitute a not less amount for a series of Rapid Fire Practices at varying distances—the scores to be against "Bogey".

G. S. Pay and G. C. Pay is dependent on length of service and red ink entries. The former is automatic, and in the Indian Army the latter are absurdly few and not worth the money paid to keep them down to a low level.

## **EVENTS LEADING UP TO THE CAPTURE OF BASRAH.**

BY LIEUTENANT-COLONEL C. C. R. MURPHY.

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The following notes were jotted down from conversations with various Turkish officers in the Ministry of War, Constantinople, during the winter of 1918-19, and may contain points of interest which have not been published before.

When war was declared, the Turkish forces in Mesopotamia consisted of the 12th and 13th Army Corps, which were composed entirely of local Arabs. These two corps were thought by the Ministry of War to be of little value, and were neglected in consequence. Whenever a Turkish officer spoke to the writer about the 'Irak divisions', meaning the 35th, 36th, 37th, and 38th, he always seemed to do so with an air of contempt which in reality they did not deserve. Attached to the 38th Division, however, was a battalion of which the officers and men were all Turks. This battalion, namely the 1-26th Regiment, which really belonged to the 9th Dvn. of the 3rd A. C. in Gallipoli, was sent out to Basrah during the summer of 1914 and belonged to one of the best regiments in the Turkish Army. Certainly no unit in any Irak division could compare with them. The composition of the 12th and 13th Army Corps was as follows :

### **12th A. C.**

35th Division.	103rd Regt.	At Mosul. From the Mesopotamian command it was transferred to the 18th A. C. and then to the 13th A. C. The 104th and 105th Rgts. were engaged at Burjisiyah in mid-April, 1915. When disbanded a year later it belonged to the 6th Army.
	104th „	
	105th „	

36th Division.	106th Regt.	At Kerkuk. Was transferred with the headquarters of the 12th A. C. to the 4th Army
	107th „	
	108th „	



42 **Events Leading up to the Capture of Basrah.**

in Syria. At the beginning of 1916, joined the 3rd Army and was engaged in the Caucasus operations. Disbanded 12th Sept. 1916 and reformed as the 36th Caucasus Regt. In the summer of 1918, reformed as the 36th Caucasus Division in the 9th Army. Disbanded at the end of 1918, its units being distributed among other divisions.

**13th Army Corps.**

37th Division.	109th Regt.	At Baghdad. Almost destroyed whilst with the 6th Army in Mesopotamia in 1915. Reformed in Sept. 1916 as the 37th Caucasus Regiment and engaged in the fighting there. Afterwards became the 37th Caucasus Division. Sent to Constantinople in 1918, whence D.H.Q. went to Derinje and the three regiments to the Yildirim Army Group. When the 110th Regt. was destroyed there, the other two regiments were transferred to the 1st Dvn.
	110th „	
	111th „	
38th Division.	112th Regt.	At Basrah. This division consisted of only six battalions of its own and one battalion attached, and suffered considerable casualties in the actions at Saniyah, Sainan, and
	113th „	
	114th „	
	1-26th „	

Zain. Most of the remainder were captured at Kurna in December, 1914, after which the division was disbanded, though remnants were still in existence at Burjisiyah.

Javid Pasha, who was Vali of Baghdad and Inspector of the 12th and 13th Army Corps at the outbreak of war, was relieved of his command in January, 1915, and sent back to Constantinople as being inept and supine. He is not to be confused with the Javad Pasha, the charming and accomplished Turk who was Commander-in-Chief in the Dardanelles during the operations of the Allied fleets in those straits, and who afterwards became Minister of War. The Vali of Basrah was Colonel Subhi Bey, who was taken prisoner at Kurna in December, 1914.

It will be recalled that the first exchange of shots between the Turks and the British took place on the 6th November, 1914. Fao was then a small Arab village, but it occupied a position of strategical value; while the fact that it was the terminal station of the Turkish land telegraph line, which was connected with Persia and India by a British cable, invested it with a certain international importance. The capture of Fao was, in itself, a trifling affair and was achieved without a single casualty on our side. The Turkish losses only amounted to eight in all, but included the "Bimbashi of Fao Fort", a certain Captain Sidiq Bey, who was killed just as he and his little "Arab Frontier Company" were trying to make good their escape.

The force under Brigadier-General W. S. Delamain (now Major-General Sir Walter Delamain), which consisted of the 16th Infantry Brigade, then moved up the Shatt-al-'Arab and on November 10th disembarked on the right bank of the river a little way above 'Abbadan. This camp became known as Saniyah from the fact of its being situated in a tract of *saniyah* land. During the first night ashore General Delamain got wind that the Turks were about to try and rush his camp, and at daybreak on November 11th the attempt was made. The actual assault was carried out by Turkish troops, namely the 1st

#### **44 *Events Leading up to the Capture of Basrah.***

Battalion of the 26th Regiment, but they were let down by the Arabs in support and the attack was easily repulsed. The Turkish commander, Sami Bey, who appears to have been regarded as a promising young officer, was killed.

On November 13th, Lieutenant-General (now General) Sir Arthur Barrett arrived at the mouth of the river and assumed supreme command. The Turkish Headquarters were at a place called Baljaniyah, which is just above the town of Muhammarah, but of course, on the opposite bank of the river. A considerable force of the enemy however, had established themselves at Saihan, four miles north-west of Saniyah, under the command of Major Adil Bey. This force, which consisted of the 2nd Battalion 112th Regiment, the 1st and 2nd battalions of the 113th Regiment, a battalion of Basrah Gendarmerie, 4 field guns, 4 mountain guns, and 4 machine guns, was attacked on November 15th by General Delamain and driven out with small loss to himself. On three or four occasions last winter the writer referred to this action when talking to Major Adil Bey, but the latter always betrayed the same unwillingness to discuss the matter. Nevertheless he admitted that the Turkish casualties amounted to 250 killed and wounded.

After the action at Saihan the enemy retired to Zain, where they were reinforced by a detachment of the 1-26th and a troop of cavalry. Colonel Subhi Bey now took over the command in person. At daybreak on November 17th, Sir Arthur Barrett moved out from Saniyah to attack the Zain position. The advance had to be made over flat ground without cover and rendered slippery by a heavy shower of rain during the forenoon, but it proceeded unchecked and by sundown the position had been carried. Throughout this fight a house belonging to the Shaikh of Muhammarah was used by the Turks as general headquarters.

The 114th Regiment was not present at Zain, having been previously sent off by Subhi Bey to the small town of Abul Khasib. After his defeat at Zain, Subhi Bey retired with part of his force to Baljaniyah. Major Adil Bey, with the remainder, fell back on Abdul Khasib whence he retreated to Zubair

## **Events Leading up to the Capture of Basrah. 45**

taking the 114th Regiment with him. A curious feature of the battle of Zain was that the Turkish casualties were the same as ours almost to a man, namely nearly five hundred.

When discussing this action in Constantinople last January, a Turkish officer said to the writer:

"Kaimakam, you made a great mistake at Zain. Just as we were retiring and trying to get our guns away, *you stopped your guns from firing*. But for that our losses would have been doubled and we should have had to abandon all our guns. Why did your guns cease firing?"

"Effendim", said I, "The English have a saying that God tempers the wind to the shorn lamb".

"Yes", said he, "Of course we knew it was the will of God". In the midst of all these fine words I could not bring myself to talk about dowdy economy; so we left it at that.

His only other comments were that the British were an honourable enemy, and that our bullets were very *rahmah*.\*

On some of our maps the word "Sahil" appears across the Zain tract. This word means shore, and is used as a topographical expletive just as "Cultivation" or "Arable land" might be, but in some accounts this action is referred to as the battle of Sahil! On these lines William the Conqueror would have named Hastings the battle of the "beach".

Like Plassey, the battle of Zain was more important as a political event than as a military exploit. It marked the establishment of the British in Mesopotamia, and should be known to us by the same name as it is known to the Turks, Arabs, and Persians, that is to say, Zain.

Major Adil Bey informed the writer that the only maps of Mesopotamia they possessed, were some they had found, at the outbreak of war, in the British vice-consulate at Mosul!

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\* *i.e.* merciful. The 1-26th (Turkish) Regiment were using the pointed bullet, which often inflicts a more serious wound than the conoidal bullet which our troops used at Zain.

**DIARY OF EVENTS ON NORTH WEST FRONTIER,  
FROM 15TH SEPTEMBER 1910 TO 14TH  
DECEMBER 1910.**

*September 15th.* Aeroplanes dispersed Khostwal Wazir Lashkar 2 miles N. E. of Spinwam.

„ *19th.* Party of cavalry and South Waziristan Militia engaged gang of 200 between Zarkani and Sheikh Haidar Pass.

„ *23rd.* Picquet at Khirgi ambushed by Mahsuds.

• „ *25th.* Gang of 'Tori Khel Wazirs approaching Pirkalai Camp by moonlight, fired on, losing 3 killed 12 wounded.

*October 5th.* Picqueting troops at Mirzail in 'Tochi attacked by gang of 100 Tori Khel Wazirs.

„ *5th.* Reconnoitring party consisting of one platoon infantry, and 3 troops I. S. Lancers attacked by 300-400 Wazirs between Manjhi and Lunai. Our losses were 29 killed including one British Officer.

„ *6th.* Column consisting of 2 Companies Infantry and one squadron I. S. Lancers, visiting scene of previous days action near Manjhi, were heavily attacked by enemy estimated at 600 strong, and were only extricated after heavy fighting. Our losses included Two British Officers one Indian I. M. S. Officer and 80 Indian other ranks.

„ *8th.* Column proceeded to Manjhi, but met with no opposition and withdrew after evacuating wounded.

• „ *9th.* In retaliation for raid by the Wana Wazirs on the Manjhi Area; Wana and neighbourhood were effectively bombed from the air.

„ *9th.* A gang estimated at 200 strong, which was waiting to attack our picquets near Mirzail in Tochi was attacked and dispersed by aeroplanes.

„ *17th.* Large lashkar collected round Murtaga and cut water supply, but after suffering at least 20 casualties themselves without inflicting any on our troops, the lashkar withdrew on 20th.

**Diary of Events on North West Frontier.** 47

- " 22nd. Column of 3 companies and one Section Mountain Artillery escorting party of Labour Corps from Manzai to Girni attacked by 250 enemy. Successful counter-attack by 2-19th Punjabis and 2-2 Gurkhas inflicted 70 to 80 casualties on enemy. We lost 6 killed—16 wounded.
- " 22nd. Convoy proceeding up Tochi attacked by 300 enemy, but reached Idak safely. This gang was engaged next day by our troops, who inflicted casualties during the 2 days estimated at 50.

*November 3rd.* Representative Mahsud Jirga attended at Khirgi and were given our terms.

- " 4th. Train from Thal derailed and attacked by raiders estimated at 50.
- " 6th. Representative Afridi Jirga of all sections, except Zakka and Aka Khel arrived in Peshawar.
- " 9th. Representative Jirga of Tochi Wazirs assembled at Dardoni and were handed our terms.
- " 11th. Picquet of North Waziristan Militia ambushed by gang of Tori Khel near Miranshah.
- " 11th. Mahsud Jirga rejected our terms.
- " 13th. Air operations against Mahsuds commenced with intensive bombing of Kaniguram, Makin and Marobi by 25 aeroplanes.  
From this date onwards daily bombing took place.
- " 13th. Tochi Column advanced from Dardoni en route to Datta Khel. A lashkar of Madda Khel Wazirs collected to oppose march but dispersed without action.
- " 15th. Tochi column re-occupied Datta Khel without incident.
- " 17th. Tochi Wazir Jirga representative of all tribes except Kazha Madda Khel, Titi Madda Khel and Hassan Khel assembled at Datta Khel and signified acceptance of our terms.
- " 18th. Bridge-head covering party of Pioneers fired on near Thal by enemy estimated at 400. Troops moved

out from Thal and engagement ensued in which enemy lost 10 killed and 30 wounded. Our losses were 2 killed 16 wounded.

- „ 18th. Kazha Madda Khel Jirga presented themselves at Datta Khel, but 3 turbulent sections of Ismail Khel, Machas and Achars remained absent.
- „ 19th. As absence of these 3 sections was intentional and contumacious, the villages of Ismail Khel and Zuram Atsar were intensively bombed. This achieved desired results and offending sections came in same day, when whole tribe unreservedly accepted our terms.
- „ 20th. Chief Commissioner N. W. F. P. handed our terms to Afridi Jirga at Peshawar.
- „ 21st. Rest house at Nasai in Baluchistan between Hindi Bagh and Killa Saifulla burnt by raiders.
- „ 25th. In consequence of acceptance of our terms by Tochi Wazirs, Datta Khel was evacuated, and Tochi Column commenced return march to Dardoni.

**November 26th.** Tochi Column arrived Miranshah without incident, except that a few shots were fired at rear-guard.

- „ 26th. Large trans-border gang attacked Cavalry Lines Kohat on night 26th/27th. Sentry was killed, rifle magazine broken open and number of rifles and one box S. A. A. removed. Troops turned out, but raiders escaped in dark.

**December 1st.** Train derailed and attacked near Thal by gang of 500 Tazi Khell Khojal Khel and Malikshahi Wazirs, Nomad Wazirs from Wana direction, together with number of Khostwal ruffians, who afterwards escaped towards Khost border. Rifles and 2 Lewis guns of escort were lost and our casualties amounted to 36 killed and 50 wounded. Troops sent out in pursuit failed to get touch with gang.

- „ 3rd. Small party enemy followed up our picquetting troops near Khirgi. Our guns and machine guns obtained good targets and we had no casualties.

**Diary of Events on North West Frontier.** 49

- „ 6th. Titi Mada Khel and Hasan Khel sections of Tochi Wazirs inhabiting Upper Kaitu Valley, who had refused to comply with our terms, were effectively bombed. Casualties from this bombing were reported as 5 Wazirs killed, 1 wounded.
- „ 10th. Gang of Abdullai Mahsuds with few Tazi Khel Wazirs attacked picquet near Idak. Losses were inflicted on enemy.
- „ 10th. Mahsuds fired on reconnoitring party near Jandola.
- „ 11th. Bombing of Mahsuds provisionally suspended owing to negotiations being in progress.
- „ 12th. Mahsud gang engaged near Jandola by guns and machine guns and casualties inflicted.

**November. 13th.** Troops from Jandola attacked and captured Sarkai Ridge 3 miles N. W. of Jandola. Mahsuds who followed up with diawal suffered casualties from guns and Lewis guns. Our casualties 23, including 6 killed.

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### **MacGregor Memorial Medallists—contd.**

- 1895...**DAVIES**, Capt. H. R., Oxfordshire Light Infantry.  
**GANGA DYAL SINGH**, Havildar, 2nd Rajputs.
- 1896...**COCKERILL**, Lieut. G. K., 28th Punjab Infantry.  
**GHULAM NABI**, Sepoy, Q. O. Corps of Guides.
- 1897...**SWYAYNE**, Capt. E. J. E., 16th Rajput Infantry.  
**SHAHZAD MIR**, Dafadar, 11th Bengal Lancers.
- 1898...**WALKER**, Capt. H. B., Duke of Cornwall's Light Infantry  
**ADAM KHAN**, Havildar, Q. O. Corps of Guides.
- 1899...**DOUGLAS**, Capt. J. A., 2nd Bengal Lancers.  
**MIHR DIN**, Naik, Bengal Sappers and Miners.
- 1900...**WINGATE**, Capt. A. W. S., 14th Bengal Lancers.  
**GURDIT SINGH**, Havildar, 45th Sikhs.
- 1901...**BURTON**, Major E. B., 17th Bengal Lancers.  
**SUNDAR SINGH**, Colour Havildar, 31st Burma Infantry.
- 1902...**RAY**, Capt. M. R. E., 7th Rajput Infantry.  
**TILBIR BHANDARI**, Havildar, 9th Gurkha Rifles.
- 1903...**MANIFOLD**, Lieut.-Colonel C. C., I.M.S.  
**GHULAM HUSSAIN** Lance-Dafadar, Q. O. Corps of Guides.
- 1904...**FRASER**, Capt. L. D., R.G.A.  
**MOGHAL BAZ**, Dafadar, Q. O. Corps of Guides.
- 1905...**RENNICK**, Major F., 40th Pathans, (specially awarded a gold medal).  
**MADHO RAM**, Havildar, 8th Gurkha Rifles.
- 1906...**SHAHZADA AHMAD MIR**, Risaldar, 36th Jacob's Horse.  
**GHAFFUR SHAH**, Lance-Naik, Q.O. Corps of Guides Infantry.
- 1907...**NANGLE**, Capt. M. C., 92nd Punjabis.  
**SHEIKH USMAN**, Havildar, 103rd Mahratta Light Infantry.
- 1908...**GIBBON**, Capt. C. M., Royal Irish Fusiliers.  
**MALANG**, Havildar, 56th Punjabi Rifles.
- 1909...**MUHAMMAD RAZA**, Havildar, 106th Pioneers.
- 1910...**SYKES**, Major P. M., C.M.G., late 2nd Dragoon Guards.  
(specially awarded a gold medal).  
**TURNER**, Capt. F. G., R.E.  
**KHAN BAHADUR SHER JUNG**, Survey of India.
- 1911...**LEACHMAN**, Capt. G. E., The Royal Sussex Regiment.  
**GURMUKH SINGH**, Jemadar, 93rd Burma Infantry.
- 1912...**PRITCHARD**, Capt. B.E.A. 83rd Wallahabad Light Infantry.  
(specially awarded a gold medal).  
**WILSON**, Lieut. A. T., C.M.G., 32nd Sikh Pioneers.  
**MOHIBULLA**, Lance-Dafadar, Q. V. O. Corps of Guides.
- 1913...**ABBAY**, Capt. B. N., 27th Light Cavalry.  
**SIRDAR KHAN**, Sowar, 39th (K.G.O.) Central India Horse.  
**WARATONG**, Havildar, Burma Military Police (specially awarded a silver medal).
- 1914...**BAILEY**, Capt. F. M., I.A. (Political Dept.)  
**MORSHEAD**, Capt. H. T., R.E.  
**HAIDAR ALI**, Naik, 106th Hazara Pioneers.
- 1915...**WATERFIELD**, Capt. F. C., 45th Rattray's Sikhs.  
**ALI JUMA**, Havildar, 106th Hazara Pioneers.
- 1916...**ABDUR RAHMAN**, Naik, 21st Punjabis.  
**ZARGHUN SHAH**, Havildar, 58th Rifles (F. F.)  
(Specially awarded a Silver Medal).
- 1917...**MAIN AFRAZ GUL**, Sepoy, Khyber Rifles.
- 1918...**NOEL**, Capt. E. W. C., Political Department.
- 1919...**KEELING**, Lt.-Col. E. H., M.C., R.E.  
**ALLA SA**, Jamadar, N. E. Frontier Corps.

# Journal

OF THE

## United Service Institution of India.

Published under the Authority of the Council.



SIMLA:

UNITED SERVICE INSTITUTION OF INDIA.

Published Quarterly.

XXXX

Price Rupees 2.

Printed by S. H. LADBELL, Longacre, Simla.

# United Service Institution of India.

## RULES OF MEMBERSHIP.

**A**LL officers of the Royal Navy, Army, Royal Air Force, Colonial Forces, and of the Indian Defence Force, and Gazetted Government Officers shall be entitled to become members without ballot, on payment of the entrance fee and annual subscription.

The Council shall have the power of admitting as honorary members the members of the Diplomatic Corps, foreign naval and military officers, foreigners of distinction, other eminent individuals, and benefactors to the Institution, not otherwise eligible to become members.

Life Members of the Institution shall be admitted on the following terms:—  
Rupees 75 + entrance fee (Rs. 10) = Rs. 85.

Ordinary members of the Institution shall be admitted on payment of an entrance fee of Rs. 10 on joining, and an annual subscription of Rs. 5, to be paid in advance. The period of subscription commences on 1st January.

Subscribing members of the Royal United Service Institution, Whitehall, London, are not liable for entrance fee while the affiliation rules are in force.

Life members receive the Journal of the Institution post free anywhere, but ordinary members only in India. All members may obtain books from the library on paying V. P. postage.

Honorary Members shall be entitled to attend the lectures and debates, and to use the premises and library of the Institution without payment; but should they desire to be supplied with the Journal, an annual payment of Rs. 8, in advance, will be required.

Divisional, Brigade and Officers' Libraries, Regimental Messes, Clubs, and other subscribers for the Journal, shall pay Rs. 8 per annum.

Serjeants' Messes and Regimental Libraries, Reading and Recreation Rooms shall be permitted to obtain the Journal on payment of an annual subscription of Rs. 6.

If a member fails to pay his subscription for any financial year (ending 31st December) before the 1st June in the following year, a registered notice shall be sent to him by the Secretary inviting his attention to the fact. If the subscription is not paid by 1st January following his name shall be posted in the Reading Room for six months and then struck off the roll of members.

Members joining the Institution on or after the 1st October, will not be charged subscription on the following 1st January, unless the Journals for the current year have been supplied.

Members are responsible that they keep the Secretary carefully posted in regard to changes of rank and address. Duplicate copies of the Journal will not be supplied free to members when the original has been posted to a member's last known address, and not been returned by the post.

Members or Subscribers to the Journal, intimating a wish to have their Journals posted to any address out of India, shall pay in advance Rupee 1 per annum, to cover foreign postage charges, but Life Members who have left India shall not be liable for foreign postage on Journals.

All communications shall be addressed to the Secretary, United Service Institution of India, Simla.

## Contributions to the Journal.

All papers must be written in a clear, legible hand, and only on one side of the paper. All proper names, countries, towns, rivers, etc., must, when in manuscript, be written in capital letters. All plans must have a scale on them.

Contributors are responsible, when they send articles containing any information which they have obtained by virtue of their official positions, that they have complied with the provisions of A. R. I., Vol. II., para. 487, and King's Regulations, para. 453.

Anonymous contributions under a *nom-de-guerre* will not be accepted or acknowledged; all contributions must be sent to the Secretary under the name of the writer, and the paper will, if accepted, be published under that name unless a wish is expressed for it to be published under a *nom-de-guerre*. The Executive Committee will decide whether the wish can be complied with.

The Committee reserve to themselves the right of omitting any matter which they consider objectionable. Articles are only accepted on these conditions.

The Committee do not undertake to authorise the publication of such papers as are accepted, in the order in which they may have been received.

Contributors will be supplied with three copies of their paper *gratis*, if published.

Manuscripts of original papers sent for publication in the Journal will not be returned to the contributor, unless he expresses a wish to have them back and pays the postage.

# ***United Service Institution of India.***

## **PATRON.**

**His Excellency the Viceroy and Governor-General of India.**

## **VICE-PATRONS.**

**His Excellency the Governor of Madras.**  
**His Excellency the Governor of Bombay.**  
**His Excellency the Governor of Bengal.**  
**His Excellency the Commander-in-Chief in India.**  
**His Honour the Lieut. Governor of the U. P. of Agra and Oudh.**  
**His Honour the Lieut. Governor of the Punjab.**  
**His Honour the Lieut. Governor of Burma.**  
**His Honour the Lieut. Governor of Bihar and Orissa.**  
**His Excellency the Naval Commander-in-Chief, East Indies.**  
**The General Officer Commanding, Northern Command.**  
**The General Officer Commanding, Southern Command.**

## **MEMBERS OF THE COUNCIL, 1919-20.**

### *Ex-officio Members*

- |  |  |
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| 1. The Chief of the General Staff.                             | 7. The Hon'ble Major-Genl. W. R. Edwards, C.B., C.M.G.   |
| 2. The Hon'ble Major-General Sir A. H. Bingley, K.C.I.E., C.B. | 8. Brig.-Genl. F. J. Moberly, D.S.O.                     |
| 3. The Hon'ble Mr. H. R. C. Dobbs, C.S.I., C.I.E.              | *9. Brig.-Genl. N. D. K. MacEwen, C.M.G., D.S.O., R.A.F. |
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- |   |                                      |
|---|--------------------------------------|
| 1. The Hon'ble Mr. R. A. Mant, C.S.I., I.C.S. | *5. Brig.-General H. Barstow, C.B.E. |
| *2. Major-Genl. R. St. C. Lecky, C.B., C.M.G. | *6. Lt. Col. H. Austen-Smith, C.I.E. |
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|   | *9. Major A. I. Sleight.             |

### **\*Members of the Executive Committee and in addition:—**

Lieut.-Colonel G. M. Molloy, C.B.E.  
Major A. C. Ogg, D.S.O.



Major A. V. Gompertz, M. C.  
Major G. L. Mayo.

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**SUPERINTENDENT**  
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..LIEUT. COL. W. L. J. CARRY, R.A.  
..S. SERGT. W. BERR.  
..ALLIANCE BANK OF SIMLA, LTD.

1. The United Service Institution of India is situated at Simla.
2. Officers wishing to become members of the United Service Institution of India should apply to the Secretary. The rules of membership are printed on the opposite page.
3. The reading-room of the Institution is provided with all the leading newspapers, magazines, and journals of military interest that are published.
4. There is a well-stocked library in the Institution, from which members can obtain books on loan, free. Suggestions for new books are solicited, and will be submitted to the Committee. Books are sent out to members V. P. for the postage, or bearing by railway.
5. The Institution publishes a Quarterly Journal in the months of January, April, July and October which is issued postage free to members in India and to all life members; but ordinary members wishing to have their journals sent to any address out of India must pay in advance Re. 1 per annum to cover foreign postage charges.\*
6. Members and the public are invited to contribute articles to the Journal of the Institution for which honoraria will be awarded by the Executive Committee. Rules for the guidance of contributors will be found on the opposite page.
7. **MEMBERS ARE RESPONSIBLE THAT THEY KEEP THE SECRETARY CAREFULLY POSTED WITH REGARD TO CHANGES OF ADDRESS.**
8. When on leave in England, members can, under the affiliation rules in force, attend the lectures and make use of the reading-room, etc., of the Royal United Service Institution, Whitehall, on payment of a subscription of 5 shillings per six months.

**. NO STABLE COMPLETE WITHOUT .**






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# United Service Institution of India.

APRIL 1920.

## SECRETARY'S NOTES.

### I.—New Members.

The following members joined the Institution between the 21st December 1919 and the 22nd January 1920.

#### LIFE MEMBERS.

Captain H. C. Duncan.	Captain C. I. F. Maynard.
Captain T. H. Flye (From Ordy).	Captain D. P. Machan.
	Lieut. F. E. Straker.

#### ORDINARY MEMBERS.

Captain R. O. Chamier.	Captain K. S. Morgan.
Captain D. C. Anderson.	Captain R. S. Johnson.
Lieut. J. Lawson.	Major Genl. Sir J. Moore.
Captain P. R. Digby.	Lieut. A. H. King.
Lieut. S. C. R. Duffy.	Major R. J. Wilkinson.

### II.—Tactical Problems.

In order to assist officers working for tactical examinations, the Institution has schemes with maps and solutions for issue to members only, at Rs. 2-8-0 each. 26 different schemes are now available.

### III.—Maps.

The Institution has for sale a variety of large scale maps (1 and 4 inches to one mile), price As. 8 each.

They are specially useful for instruction in map reading, tactical schemes and in preparation for examinations; maps of both English and Indian country are available.

### IV.—Payment for Articles in the Journal.

Articles accepted for publication in the Journal are paid for, and a sum of approximately Rs. 400 is awarded for articles and reviews published in each Quarterly Journal.

**V.—Contributions to the Journal.**

With reference to Army Regulations, India, Volume II, paragraph 487, and King's Regulations, paragraph 453, as amended by Army Order 340 of 1913, intending contributors to the Journal of the United Service Institution of India are informed, that action to obtain the sanction of His Excellency the Commander-in-Chief to the publication of any article in the Journal of the United Service Institution of India will be taken by the Committee. Contributors are, therefore, responsible that the sanction of their immediate superior has been obtained, and this should be noted on all articles sent for publication. Articles need not be submitted in duplicate.

Contributors must have their articles either typed or printed.

2. It has been decided to introduce two new items in the Journal headed—

i. Criticisms

ii. Notes on current Military and Naval questions.

The rules for (i) to be—

That the criticism should be headed with the title of the article criticised, and the date of the Journal in which published.

That criticisms should be signed with a non-de-plume, but that critics must disclose their identity to the Secretary.

The rules for (ii) to be the same as for Articles.

**VI.—Library Catalogue.**

The library catalogue revised up to 1st January 1916 is now available. Price Rs. 2 or Rs. 2-4-0 per V.P.P. A list of books received each year is published with the January Journal.

**VII.—Gold Medal Prize Essay 1919-20.**

For subject and conditions please see page IV.

**VIII.—Army List Pages.**

The U. S. I. is prepared to supply members and units with manuscript or typewritten copies of Indian Army List pages, at the following rates:—

Manuscript, per page Re. 1.

Typewritten, per page Rs. 2<sup>0</sup>



## ***Secretary's Notes.***

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### **IX.—Books**

#### ***Books Presented.***

**The Reforming of Dangerous and Useless Horses.** By Mike Rimington.

**Presented by Messrs. Gale and Polden.**

#### ***Books Purchased.***

**A History of the Northumberland Fusiliers 1674-1902.** By H. M. Walker O. 207.

**In Kut and Captivity.** By Major Sandes. M. 942

**The Dardenelles Campaign.** By Major Genl. Sir C. E. Caldwell. M. 941.

**My War Memories.** By General Ludendorff. M, 937

**Fifty Years in the Royal Navy.** By Admiral Sir Percy Scott. P. 79

**Ypres 1914.** By the German General Staff. M. 939

**With the Persian Expedition.** By Major M. H. Donohoe. M. 940

**The Struggle in the Air.** By Charles C. Turner. L. 19

**Harwich Naval Forces.** By E. F. Knight. P. 80

**The Salonica Side-Show.** By V. J. Seligman. M. 938

**Russia in Rule and Misrule.** By Brig. Genl. C. R. Ballard

**G. H. Q.** By G. S. O.

**The Australian Victories in France in 1918.** By Genl. Sir John Manash.

**The Battle of Jutland.** By Commdr. C. Bellairs.

#### ***Books Ordered.***

**Through the Hindenburg Line.**

**Under the Periscope.**

### **X.—Sale of Periodicals.**

The following periodicals were sold at the prices given for the year ending 31st December 1920.

	Rs.	A.	P.
Blackwoods Magazine	20	0	0
Geographical Journal	12	0	0
Land and Water	12	0	0
Asiatic Review	6	0	0
Colonial Journal	4	0	0
L'Afrique Francaise	5	0	0
Arms and Explosives	3	0	0
Indian Military Record	5	0	0
Army and Navy Gazette	14	0	0
The Navy	2	8	0
Revue Militaire Suisse	5	0	0
U. S. A. Infantry Journal	5	0	0

**Lots were drawn in cases where the same bid was received from one or more members.**



# United Service Institution of India.

## GOLD MEDAL ESSAY COMPETITION 1919-20.

The Council have chosen as the subject for the Gold Medal Essay for 1919-20 the following:—

Under K. R. 106 Commanding Officers are responsible for the systematic and efficient instruction of officers under their command in all professional duties, and for their due preparation for examination for promotion.

Having regard to the extended scope of an officer's professional duties since the war, is the system above indicated, the one best calculated to secure the efficiency to be arrived at, and if not, what system of instruction should take its place?

The following are the conditions of the competition:—

- (1) The competition is open to all gazetted officers of the Civil Administration, the Royal Navy, Army, and Royal Air Force or Indian Defence Force who are members of the U. S. I. of India.
- (2) Essays must be printed or type-written and submitted in *triplicate*.
- (3) When a reference is made to any work, the title of such work is to be quoted.
- (4) Essays are to be *strictly anonymous*. Each must have a motto, and enclosed with the essay there should be sent a *sealed* envelope with the motto written on the outside and the name of the competitor inside.
- (5) Essays will not be accepted unless received by the Secretary on or before the 30th June 1920.
- (6) Essays will be submitted for adjudication to 3 Judges chosen by the Council. When the decisions of the 3 Judges are received the Committee will submit the four essays, placed first in order by the Judges, with their recommendations on the award of the Gold Medal to the Council, who will decide whether the Medal is to be awarded and whether the essay may be published.
- (7) The name of the successful candidate will be announced at a Council Meeting to be held in September or October 1920.
- (8) All essays submitted are to become the property of the United Service Institution of India, *absolutely* and authors will not be at liberty to make any use whatsoever of their essays without the sanction of the Council.
- (9) Essays should not exceed about 15 pages of the size and style of the Journal, exclusive of any appendices, tables or maps.

By order of the Council,

SIMLA, }

W. L. J. CAREY, LIEUT.-COL., R.A.,

30th June 1919. }

Secretary, U. S. I. of India.

# United Service Institution of India.

## PRIZE ESSAY GOLD MEDALLISTS.

*(With rank of Officers at the date of the Essay).*

- 1872...ROBERTS, Lieut.-Col. F. S., V.C., C.B., R.A.  
1873...COLQUHOUN, Capt. J. A. S., R.A.  
1874...COLQUHOUN, Capt. J. A. S., R.A.  
1879...ST. JOHN, Maj. O. B. C., R.E.  
1880...BARROW, Lieut. E. G., 7th Bengal Infantry.  
1882...MASON, Lieut. A. H., R.E.  
1883...COLLEN, Maj. E. H. H., S.C.  
1884...BARROW, Capt. E. G., 7th Bengal Infantry.  
1887...YATE, Lieut. A. C., 27th Baluch Infantry.  
1888...MAUDE, Capt. F. N., R.E.  
YOUNG, Maj. G. F., 24th Punjab Infantry (especially awarded a silver medal).  
1889...DUFF, Capt. B., 9th Bengal Infantry.  
1890...MAGUIRE, Capt. C. M., 2nd Cav., Hyderabad Contingent.  
1891...CARDEW, Lieut. F. G., 10th Bengal Lancers.  
1893...BULLOCK, Maj. G. M., Devonshire Regiment.  
1894...CARTER, Capt. F. C., Northumberland Fusiliers.  
1895...NEVILLE, Lieut.-Col. J. P. C., 14th Bengal Lancers.  
1896...BINGLEY, Capt. A. H., 7th Bengal Infantry.  
1897...NAPIER, Capt. G. S. F. Oxfordshire Light Infantry.  
1898...MULLALLY, Maj. H., R.E.  
CLAY, Capt. C. H., 43rd Gurkha Rifles (especially awarded a silver medal).  
1899...NEVILLE, Col. J. P. C., S.C.  
1900...THULLIER, Capt. H. F., R.E.  
LURBOCK, Capt. G., R.E., (especially awarded a silver medal).  
1901...RANKEN, Lieut.-Col. G. P., 46th Punjab Infantry.  
1902...TURNER, Capt. H. H. F., 2nd Bengal Lancers.  
1903...HAMILTON, Maj. W. G., D.S.O., Norfolk Regiment.  
BOND, Capt. R. F. G., R.E., (especially awarded a silver medal).  
1904...MACMUNN, Maj. G. F., D.S.O., R.F.A.  
1905...COCKERILL, Maj. G. K., Royal Warwickshire Regiment.  
1907...WOOD, Maj. E. J. M., 99th Deccan Infantry.  
1908...JEUDWINE, Maj. H. S., R.A.  
1909...MOLYNEUX, Maj. E. M. J., D.S.O., 12th Cavalry.  
ELSMIE, Maj. A. M. S., 56th Rifles, F. F., (especially awarded a silver medal).  
1911...MR. D. PETRIE, M.A., Punjab Police.  
1912...CARTER, Major B. C., The King's Regiment.  
1913...THOMSON, Major A. G., 58th Vaughan's Rifles (F. F.)  
1914...BAINBRIDGE, Lieut.-Col. W. F., D.S.O., 51st Sikhs, (F. F.)  
NORMAN, Major C. L. M.V.O., Q. V. O. Corps of Guides  
(especially awarded a silver medal).  
1915...No award.  
1916...CRUM, Major W. E., V.D., Calcutta Light Horse.  
1917...BLAKER, Major W. F., R. F. A.  
1918...GOMPERTZ, Capt. A. V., M.C., R.E.  
1919...GOMPERTZ, Capt. M. L. A., 108th Infantry.

## MacGREGOR MEMORIAL MEDALS.

1. The MacGregor Memorial Medal was founded in 1888 as a memorial to the late Major-General Sir Charles MacGregor. The medals are awarded for the best military reconnaissances or journeys of exploration of the year.

2. The following awards are made annually in the month of June:—

(a) For officers—British or Indian—silver medal.

(b) For soldiers—British or Indian—a silver medal, with Rs. 100 gratuity.

3. For specially valuable work a gold medal may be awarded in place of one of the silver medals, or in addition to the silver medals, whenever the administrators of the fund deem it desirable. Also the Council may award a special additional silver medal, without gratuity, to a soldier, for special good work.

4. The award of medals is made by His Excellency the Commander-in-Chief as Vice-Patron, and the Council of the United Service Institution, who were appointed administrators of the Fund by the MacGregor Memorial Committee.

5. Only officers and soldiers belonging to the Army in India (including those in civil employ) are eligible for the award of the medal.\*

6. The medal may be worn in uniform by Indian soldiers on ceremonial parades, suspended round the neck by the ribbon issued with the medal.

### Note.

(i) Personal risk to life during the reconnaissance or exploration is not a necessary qualification for the award of the medal; but in the event of two journeys being of equal value, the man who has run the greater risk will be considered to have the greater claim to the reward.

(ii) When the work of the year has either not been of sufficient value or has been received too late for consideration before the Council meeting, the medal may be awarded for any reconnaissance during previous years considered by His Excellency the Commander-in-Chief to deserve it.

### MacGregor Memorial Medallists.

*(With rank of Officers at the date of the Award).*

1889...BELL, Col. M.S., V.C., R.E. (specially awarded a gold medal).

1890...YOUNGHUSBAND, Capt. F.E., King's Dragoon Guards.

1891...SAWYER, Major H. A., 45th Sikhs.

RAMZAN KHAN, Havildar, 3rd Sikhs.

1892...VAUGHAN, Capt. H. B., 7th Bengal Infantry.

JAGGAT SINGH, Havildar, 19th Punjab Infantry.

1893...BOWER, Capt. H., 17th Bengal Cavalry (specially awarded a gold medal).

FAZALDAD KHAN, Dafadar, 17th Bengal Cavalry.

1894...O'SULLIVAN, Major G. H. W., R.E.

MULL SINGH, Sowar, 6th Bengal Cavalry.

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\*N.B.—The terms "officer" and "soldier" include those serving in the British and Indian armies and their reserves; also those serving in Auxiliary Forces, such as the Volunteers and Corps under Local Governments. Frontier Militia Levies and military Police, also all ranks serving in the Imperial Service Troops.

The Journal  
OF THE  
United Service Institution of India.

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Vol. XLIX.

APRIL 1920.

No. 219.

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**THE MANOEUVRES OF THE FUTURE AND THE  
GENERAL PRINCIPLES ON WHICH HIGHER PEACE  
TRAINING SHOULD BE CONDUCTED IN VIEW OF  
THE LESSONS OF THE LATE WAR.**

By

LIEUT.-COLONEL G. W. HASLEHURST, 29TH PUNJABIS.

**INTRODUCTION 1.**

The late war has taught many lessons, some new, the majority old and well known, though often neglected.

Many inventions have been brought out, and new weapons have been introduced.

In this essay it is proposed to consider the principles underlying these lessons and governing the use of these weapons, to compare such principles with those laid down in pre-war text books, and as a result of this comparison to frame suggestions for the adaptation of the training and manoeuvres of the future to meet modern requirements.

**Lessons of the present war 2.**

The lessons of the war if taken *in extenso* would go far beyond the limits of this paper. It is however, considered that by bringing forward a few of the more important it may be possible to deduce certain safe conclusions as regards the needs of future training. The lessons selected have been limited to ten, and they are placed in what is considered their order of importance.

**Selected lessons of the war.**

I. Necessity for unity of effort accompanied by a good system of inter-communication.

II. Value of discipline and physical fitness.

## ***The Manoeuvres of the Future.***

III. Value of sound musketry training, combined with the intelligent use of machine guns and automatic rifles.

IV. Necessity for close co-operation between artillery, infantry and aircraft, combined with the increased mobility of heavy artillery.

V. Necessity for training in hand-to-hand fighting.

VI. Necessity for formation in depth.

VII. Necessity for attention to detail in staff work.

VIII. Necessity for the perpetuation of units.

IX. The capabilities of youth for the lesser commands.

X. Numbers will tell.

### **Separate consideration of the above lesson 3.**

Let us consider these lessons shortly.

*I. Necessity for unity of effort accompanied by a good system of inter-communication.*

F. S. R. Part II Chapter II begins, "The successful issue of military operations depends primarily upon combination and unity of effort directed with energy and determination towards a definite object. Unity of control is essential to unity of effort."

It has taken several years for the lesson to be thoroughly appreciated.

F. S. R. Part I Chapter II begins, "The constant maintenance of communication between the various parts of an army is of urgent importance" and a whole chapter is devoted to the subject.

The lesson is thus by no means new.

*II. The value of discipline and physical fitness.*

The importance of these points was insisted upon in all the pre-war training manuals and the experience of war has only tended to emphasize this importance.

The original British expeditionary Force had reached a high standard, and it is only required that such a standard should be maintained in the future.

*III. Value of sound musketry training, combined with the intelligent use of machine guns and automatic rifles.*

Here again, far as musketry is concerned so it will be sufficient to maintain the pre-war standard with a little change of method so as to obtain the best results of the combination of the bullet and the bayonet.

It was the accuracy and rapidity of the rifle fire which saved the British army in the early days of the war and helped so materially to stem the German rush.

In the recognition of the value of machine guns Germany forestalled us, but the lesson was soon learnt, and the two machine guns per regiment and battalion have given place to a Brigade machine gun company and sixteen automatic rifles per unit. The principles of employment of machine guns and automatic rifles and more particularly the differentiation of their respective roles has taken longer to learn and finality has by no means been reached.

The tactical use of both weapons leaves many problems for solution in the future, but their value has been proved beyond doubt.

*IV. Necessity for close co-operation between artillery, infantry and aircraft, combined with the increased mobility of heavy artillery.*

The necessity for close co-operation is constantly emphasized throughout Chapter VII F. S. R. Part I, but the means for obtaining it have not gone far enough to acquire the results aimed at. The knowledge of officers of either arms of the capabilities and requirements of the other arms is not sufficiently intimate.

This subject will be discussed further on.

It does not appear that the full value of artillery, and more especially heavy artillery, was thoroughly appreciated before the war.

F. S. R. Part I, paragraphs 4-8, does not foresee the future opened out to heavy artillery, nor the possibilities of its mobility.

*V. Necessity for training in hand-to-hand fighting.*

This is to a certain extent foreshadowed by F. S. R. Part I, paragraph 6-2, "To drive an enemy from the field, assault, or the immediate threat of it is almost always necessary."

Infantry training, Appendix I, gives a course of bayonet fighting to be gone through *annually* by the trained soldier, and bayonet fighting figures in the recruits six months syllabus of training, but was not to begin till the ninth fortnight.

Infantry Training has shown how little real importance was attached to the subject, and there is no doubt that the question of expertness in hand-to-hand fighting was left very much to the individual and its interest was fostered more by the periodic visits of Inspectors of Gynnasia and by assaults-at-arms than by actual training.

#### *VI. Necessity for formation in depth.*

Infantry Training, Section 122, lays down that a battalion in attack is divided into (i) Firing line and supports (ii) Local reserve.

F. S. R. Part I Section 104-3 lays down "the force allotted to the decisive attack must be as strong as possible" and again "the decisive blow must be driven home" The latest experience goes to show that a smaller force than from 3 to 5 men per yard on the front on which the decisive attack is to be delivered will rarely prove sufficient, this force being distributed in *such depth as circumstances make advisable*.

Thus both I. T. and F. S. R. preach the principle of depth, though it can hardly be said that they insist on it with such emphasis as the experience of the war has made necessary.

It has been constantly shown that it is only by the continuous advance of line after line or wave after wave that the defences of the present day can be overcome.

One of the greatest difficulties of this war has been that of concentrating sufficient men at a given point of the line, not only to be able to break through the enemy's defences, but having done so to be able to withstand the inevitable series of counter-attacks. It was only in the last year of the war on the Western front that the problem of breaking through the enemy's line and carrying on a definite advance was solved. It is mainly a question of formation in depth, and it may almost be laid down as an axiom "in proportion to the depth of the attack, so will be the extent of the advance."

***VII. Necessity for attention to detail in staff work.***

There are two points in which the British Staff Officer, and more especially the Staff Officer trained in India, is weak.

(i) Attention to detail.

(ii) Giving every assistance to the troops.

Both these points are drawn attent to in F. S. R. Part II, Section 14-2, and their importance has always been emphasized at both Staff Colleges.

The late General Capper, when Commandant of the Quetta Staff College, once said that a staff officer should make three drafts of every memorandum before issuing it.

It has always been impressed on staff college students how important a part of their duties it is "to help the troops."

• At the same time on many occasions important details have been neglected, and it is a common occurrence to receive an order of which the meaning if not obscure admits of at least two renderings. Again in issuing orders and instructions it often appears that staff officers pay more attention to the correctness of official procedure, or the saving of trouble to the headquarters to which they belong, than they do to the necessity of giving early and helpful information to the troops.

These failings arise from a want of sympathy on the part of staff officers with the units with which they deal.

***VIII. Necessity for the perpetuation of units.***

By this is meant the preservation of a working nucleus to every unit after the severest action. And this appears to have been neglected in our training manuals.

In the case of machine gun sections and other specialists extra numbers were trained to replace casualties, but as to saving the nucleus of a unit, it was not considered.

The ambition of every C. O. was to lead his unit into action as strong as possible; as to what state it came out of action or its readiness for future action, that was "on the knees of the gods."

In fact there was a want of thought for the future, and every battle was looked upon as the Waterloo of that particular campaign.



Perhaps this was only natural with an army which for many years has been used to fighting against untrained troops, where the percentage of casualties has been small, and where the spirit exists and always has existed of the officers always setting the example not only by leading their men, but by carrying out all the most dangerous enterprises.

The lesson was soon learnt: a short experience of war taught the British commanders that officers are valuable, and must be preserved in spite of themselves and their own valour; that the nuclei of units must be maintained so that after the severest action or series of actions the foundations for the re-raising of the unit may still remain.

The lesson must not be forgotten.

***IX. The capabilities of youth for the lesser commands.***

This lesson was first forced on us only by sheer necessity. Younger men were given commands simply and solely owing to the shortage of older and more experienced men.

Latterly younger men have been preferred, because it has been found that they stand the strain of continuous warfare better than older men and can be counted on to give quicker decisions.

In the future we must aim at getting the best value out of both the older and the younger men.

We must make use of the older men in training the army, but the younger men must be given more opportunities than they had in the past of obtaining commands and assuming responsibility.

The best of the junior men must be given a chance of quick promotion in peace as well as in war, and the only method is that of judicious selection.

Selection must be strictly impartial, and must not be confined to officers of the staff.

Regimental officers of exceptional merit must have an equal chance of advancement with their brethren on the staff.

***X. Numbers will tell.***

This seems to be in the nature of a truism: no doubt it is, but it is a truism that up till 1914 had not been grasped by

the British nation as regards itself. It might affect the rest of the civilised world, but the British Empire was a thing apart.

The lessons of history were neglected, and it was accepted by the leaders of the Empire that the part to be played by Great Britain in a Continental war would be limited to the action of the navy and the provision and upkeep of an Expeditionary Force of 160,000.

It is hard to understand the calculations on which the strength of the expeditionary force was based.

Facts must be faced, and it is now recognized that civilised warfare has become a conflict not between national armies but between "nations in arms" The chances of success in war can be gauged by the limits of "man-power" and "material resources" of the respective combatants.

In future it will be the duty of the British Empire so to organise its man-power and material resources that, when required, they can be utilised to the greatest advantage. And so only can we be said to be "prepared for war."

**Further points brought out by the war.**

4. In the lessons quoted above many very obvious points have been omitted.

It will naturally be asked what about aircraft? what about gas? grenades? trench howitzers? tanks? barbed wire and the science of barbed wire cutting? and above all what of trench warfare?

Let us consider these means of warfare.

About aircraft, F. S. R. Part I, Section 70-4, "The principal duties of aircraft at present are reconnaissance and prevention of hostile reconnaissance. Aircraft are usually provided with some form of armament for the attack of hostile aircraft in the air.

Aircraft are also capable of offensive action against troops on the ground by means of machine guns and bombs. When sufficient aircraft are available they can be employed for the observation of artillery fire and for inter-communication between widely separated portions of an army."

The principles of the use of aircraft even up to the end of the war are embodied in these sentences. It must be realised, however, that the opening up of the air as a theatre of war has introduced a further factor, and one of incalculable importance in the science of war.

As regards gas, grenades and all other new means of warfare which have been brought out by this war, what are they but new methods of carrying out old principles. Gas is a new means of gaining superiority of fire power, and grenades are a new means of carrying out the decisive assault.

It is still a "superiority of fire-power" no matter what the fire-power consists of, which enables the assault to be carried out. No matter whether the assault is carried out by waves of bayonet men, by bombers or even by tanks. The principle holds—victory cannot be obtained by fire-power alone—such fire-power must be followed by assault.

In fact it has been for all time and apparently always will be, the only thing feared most by man is man; and it is the close onward rush of men, however armed or disguised, which forces man himself to give way.

But what of trench warfare? Does not this involve new principles?

Trench warfare involves the learning of a mass of detail not legislated for in open warfare. In carrying out trench warfare one of the five senses is almost entirely deficient, the sense of sight.

Trench warfare is almost warfare in the dark, and consequently the lack of seeing power has to be compensated for by a greater attention to detail in other ways. A trench attack should be rehearsed beforehand to ensure success.

But trench warfare in spite of its details and its difficulties brings out no new principles, and is only an adaptation of existing principles. In this way it is much akin to mountain warfare or to bush warfare.

#### **Future role of the British Imperial Army.**

5. We have deduced certain lessons from the present war.

But is this war to be considered as an example for all future wars ?

Before adopting these lessons it will be well to consider what kind of warfare may be expected in the future and then see how far these lessons are applicable.

In fact, what is to be the future role of the army ? Mathematically the greater includes the less, but it is not so in war ; an army equipped and organized for war in Flanders would not be of much value in the hills of the N. W. Frontier of India or in the deserts of Somaliland.

For the purpose of considering the question we will divide warfare into two classes, (i) Civilised warfare or warfare carried out with a civilised opponent and under normal physical conditions, (ii) Uncivilised warfare or warfare carried out with an uncivilised opponent under abnormal physical conditions.

To attempt to foresee the future it is best to make a short study of the past.

In the last 100 years from 1818 to 1918 let us compare the two classes of warfare.

**Civilised warfare.**

(i) We have the Crimean war, the Boer war and the present war, and of these it can hardly be said that the physical conditions of the Boer war were quite normal.

**Uncivilised Warfare.**

(ii) We have fought in Asia many campaigns, on all the frontiers of India, in Afghanistan, China, Tibet. We have fought in all parts of Africa, in Canada and in New Zealand.

In fact our uncivilised campaigns have been almost countless, and have been fought under all conditions and in all parts of the world.

So much for the past.

Having regard to the past let us glance into the future and consider its possibilities and probabilities.

**Civilised Warfare.**

(i) It would have seemed that the surest result of the War would have been to stop its recrudescence in Europe for many years to come.

The loss of life, the wastage of material, the expenditure of money on non-productive sources, all seemed to preclude the continuation of war on a large scale till the nations had time to recover.

And add to this the incalculable factor of human nature. All the civilized world, at least in Europe, is war-weary, and yet a great part of it is still involved in a struggle of which the end is not yet in sight.

This, however, is the aftermath of the great war, the result of the abatement of the storm which has raged over the world.

When this has subsided civilisation will look upon war with horror and disgust, and it will take generations for these feelings to be dissipated.

On the other hand, wars will not cease for ever and be superseded by international arbitration.

Human nature added to the other factors mentioned above may prevent another war like the present one for several decades, but human nature as embodied in one or a number of nations will render warfare as certain in the future as it has been in the past.

We must therefore expect civilised warfare on the present scale in the future, though possibly not in the immediate future.

### **Uncivilised Warfare,**

II. Is there any reason for contemplating a future untroubled by minor wars?

Have the horrors of this war impressed on the uncivilised neighbours of our Empire the undesirability of war?

The tribes on the frontiers of India have given no indication of such feelings, nor does it seem likely that the possibilities of trouble in various parts of Africa have been removed.

In fact it may be accepted that untill the uncivilised peoples of the world have in some way or other come into the power or under the protection of civilised nations there will always be troubles which can only be settled by force, i. e., by punitive expeditions.

The only hope of the future is that the advance of science

may tend to discourage the uncivilised tribes from incurring the displeasure of their more enlightened neighbours.

The employment of aircraft has already had its effect and probably has a great future in this respect. But the fact remains that uncivilised warfare will be constantly recurring and we must be in a state of immediate readiness for it.

Thus we arrive at the conclusion that we must have certain forces trained and organised for immediate action against an uncivilised foe, and that we must have a basis of training and organisation which will expand to meet the needs of warfare against a civilised enemy.

### **Lessons of the war as applicable to uncivilised warfare.**

6. A short consideration of the lessons of the war that have been selected will show that, with few exceptions, they apply as strongly to uncivilised as to civilised warfare.

Unity of effort is as necessary when dealing with several small columns as when moving armies. The general principles of training are the same as for normal fighting.

The lessons to which exception may be taken are two.

I. The necessity for taking special means to preserve the nuclei of units does not exist where the percentage of casualties is small.

II. The truism "Numbers will tell" does not work in the case of an uncivilised foe; if it had been so the British Empire would not be where it is. It is the substitution of discipline and training which has rendered innocuous the larger numbers of our savage enemies.

It appears therefore that training which is suitable for a Continental war will also be equally valuable for warfare against uncivilised tribes. In addition there should be extra training and a special organisation to meet the particular physical conditions which may be found in the parts of the world where this kind of warfare is to be expected.

### **Conclusions arrived at as regards the training of the future.**

7. We can now deduce some definite conclusions as to the training of the future.

## ***The Manoeuvres of the Future.***

Let us start by acknowledging that as judged by pre-war experience the British Expeditionary Force in 1914 was as well-trained a body of men as any in the world.

In its discipline, physical fitness, and musketry training it reached a standard which may well be aimed at as the ideal of the future. The Aldershot system which largely led to this result showed two outstanding features.

(i) All training was progressive, every step followed on logically, from individual training to army manoeuvres.

(ii) Training was strenuous, inter-spersed with periods of complete rest so that the soldier did not become stale or over-trained.

In the training itself march discipline is strongly insisted on, and good march discipline leads to good discipline all through.

Musketry training was practical and thorough and has been completely justified by results.

The history of the first few months of the war show the value of the physical training which was carried out.

The Aldershot system may thus be taken as a basis for the training of the future and as regards discipline, physical fitness, musketry and marching it does not require improvement.

But the war has taught us lessons by following which we can without adding to this training, improve upon its methods.

Unity of effort, inter-communication, cooperation, are all different means of expressing the same thing and that is cohesion.

We require more cohesion.

The British Army has always been strongly imbued with the spirit of "esprit de corps" and it is that which has many a time pulled it through when everything seemed lost. Far be it from us to wish to tamper with such a spirit, but what is required is to go one step further and to foster also an "esprit de l'armée."

And the way to do this is to keep troops together and to train them together more than has been done in the past.

The Brigade should be a closer bond than it is. Brigade training should last longer than it has done and units should be accustomed to working together more than to working alone.

In the past most of the year was taken up in the separate training of regiments and battalions.

There should be more combined training so that the issuing and reception of orders from a higher command becomes a habit.

Working with other units should become second nature, and nothing should be done without reference to other units so that inter-communication would become automatic.

#### **Co-operation with other arms.**

This, as well as the combined work of units of the same arm, must be constantly practised.

It has never been carried far enough in the past, and its failure lies in the ignorance of officers.

The practice has been to attach officers of the staff to branches of the service other than their own for periods of 2 or 3 months. Other officers pick up their knowledge of arms other than their own by what they read, what they see at manœuvres, and regimental officers see very little, and by attendance at artillery practice camps.

These methods are quite inadequate and it is only to be wondered at that, after such a training, our commanders have any knowledge at all of the working of the different arms.

Real co-operation requires more than this.

Officers should be able to command a unit of other arms corresponding to the unit they command of their own.

This may seem going rather far, and of course it must have its limitations as everything cannot be learnt at once; it is what is to be aimed at.

Infantry officers must be intimately acquainted with artillery and a subaltern and a major should be able to command a section and a battery respectively; while conversely an officer of the Royal Artillery should find himself perfectly at home in command of a company or battalion.

Infantry and Artillery officers need not become expert aircraft pilots, but they should all have practice as observers and conversely officers of the R. F. C. should be able to take their place as commanders with Artillery and Infantry units.



## ***The Manœuvres of the Future.***

The same remarks apply in a lesser degree to Cavalry officers.

As regards the R. E., owing to the technicality of their training it would be impossible for officers of the other branches to be "*au fait*" with their duties, but R. E. officers themselves should be better acquainted with the capabilities and requirements of the other arms.

Under the present system there are officers of 20, 25 and even 30 years service who have never had the opportunity of learning the powers of any arm of the service other than their own.

This is obviously wrong. At least 1 year in 5 should be spent in attachment to other arms: such attachment should not be spent in looking on, but officers so attached should be treated during the time of attachment as an integral part of the unit to which attached, and should hold command in the same way as other officers of the unit.

By these means only will thorough co-operation be brought about; the first essential to co-operation is knowledge, it cannot exist in combination with ignorance.

### **Use of machine guns.**

The value of machine guns and automatic rifles is now understood and must not be lost sight of.

### **Hand-to-hand fighting.**

And in the same way hand-to-hand fighting must be continued on the lines taught by the war, *i. e.*, the aim of such teaching is to enable the soldier to kill his opponent: a general expertness in this art will inevitably improve the morale of an army. It should be taught in combination with musketry training so as to get the best combined results of both.

### **Training of the Staff officer.**

Staff officers require to pay more attention to detail and to be more helpful to units.

Before the war the supply of trained staff officers was limited, and a graduate of the Staff College was almost certain of obtaining staff employment, if not of embarking on a practically continuous staff career.

He thus got out of sympathy with regimental work.

The remedy is to increase the out put from the Staff Colleges.

It would then be possible to give officers longer periods with their units, and to place them in positions for which they are particularly suited. Officers found unsuitable for staff work should be returned to their units, and a system should be developed at the Colleges so that entrance to a staff college need not by any means ensure the possession of a P. S. C.

It is only in the case of officers employed on big problems of strategy or organisation, when continuity of policy is essential, that the period of staff employ might be extended, and such cases should be rare.

It must be recognized, however, that the officer who passes through a course at a Staff College shows a keenness for his profession and a readiness for hard work which should receive its reward.

Every officer who has obtained a P. S. C. should, whether employed on the staff or not, receive a certain extra allowance. *To meet this the pay of staff appointments could be reduced.*

In this way the regimental officer should lose a great part of his grievance against the staff officer as he would realise that the latter is only reaping the reward of hard work and owes nothing to "favour, partiality and affection"! The P. S. C. officer also will be satisfied to remain longer with his unit, and will not be so anxious to get a job when he feels that his labours of the past are not entirely unrecognized.

**Necessity for the perpetuation of units and the capabilities of youth for the lesser commands.**

These two lessons can be conveniently discussed together.

In the future the question of preserving the nuclei of units must always be considered, and in doing this it can often be so arranged as to give commands to junior officers.

The first is a matter of organisation, the latter is a question of training.

In pre-war days officers were trained to carry out the duties of the appointment they were actually holding. In future they

## ***The Manœuvres of the Future.***

must be trained for the duties of appointments above that which they hold.

And the only way for them to learn these duties is actually to perform them.

And, further, junior officers who show particular capacity in the execution of duties senior to those to which they have been appointed must be given advancement.

It is not intended to revolutionise the army, and to oust all the seniors and put junior officers in their place, but junior officers of outstanding abilities, whether best suited to staff or regimental employment, must have a chance of coming to the top without being blocked by the time-honoured system of seniority.

In all other professions young men come to the front and the army must not be behind hand in this respect.

**Necessity for formation in depth and Numbers will tell.**

Again these two principles are linked together because they are intimately connected.

A true grasp of formation in depth cannot be obtained without the concentration of large numbers.

This is a question of manœuvre as opposed to ordinary training.

The manœuvring of large bodies must come to a stand still when contact is obtained, as without using weapons no effort of imagination and no work of umpires can bring about a definite and satisfactory result.

Manœuvres should be of two sorts.

(i) Tactical (ii) Administrative.

**Tactical.**

(1) These manœuvres should be carried out by small bodies of troops, brigades or at most a division, and should be so directed so as to teach certain definite strategic and tactical lessons.

They may with the addition of imaginary troops set strategic problems to the respective commanders, and they can be so directed as to lead to tactical instruction after contact has been obtained.

In these manœuvres special attention can periodically be directed to particular forms of training such as trench warfare, mountain warfare, embarkation and disembarkation, etc., etc. Though classed as tactical they will include many administrative problems.

**Administrative.**

(ii) These manœuvres should be carried out by the largest available bodies of troops—corps and armies. They should involve administrative problems such as the movement, concentration and maintenance of large forces in given areas.

As soon as contact has been obtained the manœuvres should cease, and no attempt should be made to carry them on to a tactical decision.

Preliminary arrangements must be, as far as possible, eliminated, but every resource of railway, road, supply and accommodation of the area concerned must be placed at the disposal of the respective Commanders.

Such manœuvres, interfering as they must with the interests of large civil communities, can be carried out but rarely.

Manœuvres should then be carried out usually to teach the ordinary lessons of what is now known as "open warfare" but should periodically be devoted to special forms of warfare, and occasionally the larger administrative problems should be worked out with "troops on the ground"

It is perhaps needless to say that the study of problems, strategic, tactical and administrative should be carried out constantly "on the ground without troops".

**New methods of war.**

To deal with the new means of warfare which have recently been brought to light there are two necessities—

(i) To keep up to date.

(ii) To be prepared with something newer and more destructive than the enemy.

To carry out (i) To keep up to date, suggested that schools should be instituted for the training and exploitation of the various new methods of warfare, gas, grenades, tanks, trench howitzers, etc.

At these schools a certain nucleus of men in each unit should be trained in the latest methods so that they can keep the training in their respective units up to date.

As regards (ii) To get ahead of the enemy, Committees of Inventions are necessary for the purpose of thinking and experimenting in all possible means of warfare.

These committees must receive sympathy and also solid pecuniary assistance.

To sum up briefly.

### **Summing up.**

The training of the future should be based on the lines of the Aldershot system.

In addition it will be necessary to--

(i) Increase the cohesion of the army by devoting a larger portion of the time to combined training and by the further training of officers in arms other than their own.

(ii) Thoroughly grasp the principles of employment of machine guns and automatic rifles, and develop to its fullest extent the art of hand-to-hand fighting.

(iii) Appreciate more fully the capabilities of artillery, and more especially heavy artillery.

(iv) Increase the supply of staff officers and train them to be more in touch with units

(v) Arrange for the preservation of the nuclei of units.

(vi) Exploit junior officers.

(vii) Keep up to date and if possible ahead of the times in all adjuncts to warfare by means of Special schools and Invention Committees.

(viii) In our manœuvres aim generally at teaching the normal lessons of strategy and tactics, *i. e.*, teach "open warfare"; but occasionally turn our attention to the warfare which is brought about by certain special conditions, and not neglect the larger administrative problems which warfare on its present scale brings forward.

### **Application of such principles of training to India.**

8. It only remains to consider how the principles of training outlined above can be applied to India.

The Aldershot system insists on progressive training.

This presents the first difficulty.

Individual training can be carried out in the hot weather instead of in the winter, but it is in the progressive stage of collective training that the difficulty arise.

In most parts of India the state of the crops prevents the training of large bodies of troops later than December.

It thus often happens that Brigade and Divisional training have to be carried out before regimental and battalion training have been completed, thus reversing the desired system.

There is only one remedy.

Manoeuvring areas must be acquired where military training will take precedence of agriculture.

There is one further point that should not be missed.

The climate of India renders it necessary for families to spend the hot weather in the hills. This leads to separation and the increased expenditure involved by the maintenance of a double establishment in the case of married men.

If this separation is to be continued throughout the cold weather as well owing to the husbands spending their time in training camps it is likely to cramp their professional ardour.

The remedy is to acquire land near cantonments so that the earlier period of collective training may be carried out from cantonments.

### **Cohesion.**

The next principle to prevent difficulties is that of cohesion.

Cohesion, combination or cooperation all entail uniformity of standard and method in the units working together.

Here we are faced with two problems—

- (i) The general want of uniformity of the Indian army with the British service.
- (ii) The want of uniformity among the units composing of the Indian army.

To solve these problems drastic changes are required.

#### **(1). Want of uniformity between Indian army and British Service.**

As in the case of the lack of cooperation between the different arms of the service so the difference in standard between

the Indian and British Service is due to ignorance of home methods on the part of officers of the Indian army.

Officers of the Indian army are sent straight out to India and get no chance of seeing home methods and the home standard. They cannot therefore be blamed if they do not reach such a standard.

Again, owing to various reasons there must necessarily be some slight differences between Indian and home methods.

In the past it would seem that these differences have been unduly accentuated. This is not now the case, but there are still a good many unnecessary points of divergence of method.

The remedy is to keep closer touch with the home system.

This must be done by sending officers of the India army home and attaching them periodically to home units. As in the case of cooperation these attachments must be *bona fide*, and they should continue throughout an officer's service as far, at least, as the rank of Brigade Commander.

The aim will be in the future to make the Indian army a part of instead of keeping it apart from the British service, and a system similar to that of the Egyptian army seems to be foreshadowed. But such a change can only be brought in gradually and slowly.

**(II) Want of uniformity amongst the units composing the Indian army.**

This is due to reasons political and climatic. Political reasons lead to obligatory garrisons in certain stations: obligatory garrisons mean in some cases single unit stations or those of which the garrisons are too small to admit of combined training: in other cases units belonging to one war formation are located in stations far apart; more important still is the necessity for allotting troops to internal security.

The tours of duty at small stations and for internal security should be made as short as possible and war formations must be located together.

The location of a unit at two small stations in succession—a frequent move in pre-war-days—must never be allowed.

Again, units are raised from non-fighting classes, or at least from classes as to the fighting value of which strong doubts exist.

The remedy to this is obvious.

Other units have acquired the right to be quartered in certain permanent stations, and generally speaking, in small stations.

This naturally, tends, to narrow-mindedness and a false standard of training.

Every unit in India must be fit and ready to take its turn at any station and permanent stations must, in all cases, be abolished.

Again the best class of officers naturally gravitate to those units which are recognised as being the best.

This is all for the good of the best units, but does not help those not so good.

There must be strict impartiality in the appointment and posting of officers to units and no claim for posting to any particular unit must be listened to.

If these measures are insisted on a high uniform standard should be reached.

### **Exploit junior officers.**

The only other point which needs special attention as regards India is the necessity for the exploitation of junior officers.

If the power of seniority is valued highly at home it is far more so in India.

And yet in India the extremes of climate tend to age men more rapidly than at home.

In India the feeling against selection has always been strong and the claim of seniority is held to be irresistible, with the result that frequently men obtain commands when they have lost the mental and physical activity which such commands demand.

The old idea that a man is not fit to lead Indian troops until he has spent most of his life attempting to learn their characteristics is exploded and the claims of good junior men must be recognised.



### ***The Manoeuvres of the Future.***

Promotion should generally go by seniority, but there are two methods by which junior men can be helped to advancement.

(i) Generally to lower the amount of service required for command by offering the inducements of an early pension to the older men.

(ii) To give promotion to a limited extent by selection: such selection to be made by a selection board so constituted as to hold the confidence of the army.

The other principles of training brought forward present no particular difficulties as far as India is concerned, and need not be discussed further.

#### **Summing up as regards India.**

In conclusion, the main requirements to bring up the Indian army to the required standard can be summarized as follows:—

(i) A closer alliance with the British service.

(ii) Uniformity of training among the units of the Indian army.

(iii) The exploitation of youth, all of which demand a policy not of extravagance, but of generous expenditure, and it is only by such expenditure that a really efficient army can be maintained.

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## **THE FOLLOWERS OF INDIAN UNITS.**

BY

• MAJOR S. C. WILLIAMS S. & T. CORPS.

### **1. Need of Organization.**

One minor lesson taught by the war is the need of some organization to prevent the unnecessary inconvenience caused to units by difficulties in obtaining suitable followers to take on service or to replace casualties in the field. Unnecessary inconvenience entails avoidable loss in efficiency.

One hears many cases of Indian battalions receiving orders to proceed overseas, and then being deserted by the majority of their mess, private, and public followers, for reasons varying from the 'dying mother' invention to genuine physical unfitness. To replace the followers necessary for service in the short and strenuous time allowed for mobilization or moving was nearly always impossible, as the menial classes never had any difficulties in finding employment in India, and could not be attracted sufficiently by promises of free rations and clothing when on service. Had there been any reasonable prospects to entice these individuals to serve in military employ, there would have been little difficulty in obtaining followers when required, and those employed in peace time would not have quitted their appointments.

Thus we see the advisability of altering the conditions under which the servant class serves at the present time.

### **Technical Establishments, and Artificers.**

In attempting any organization it should be noted that the term 'Follower' is not a desirable one, as, although descriptive, it groups men of comparatively high caste with those of the very lowest.

It should also be borne in mind that many, if not all, Indian units in peace and war employ certain unauthorized followers skilled in various technical trades, or else have men enlisted nominally and officially as soldiers, but actually as trained work men of various callings. This procedure has been found necessary, and therefore Government should recognize and legislate for the inclusion of such artificers in the establishment of units.

### ***Followers of Indian Units.***

There should be in every Indian Cavalry Regiment and Infantry Battalion an adequate complement of pioneers, tailors and shoemakers with tools and equipment to form unit workshops which, in the cases of tailors and shoemakers, should be divisible into Squadron and Company Sub-shops, and also completely detachable, so that grouped Brigade workshops could be formed if required.

These artificers should be authorized, and should be soldiers in name and fact. It may be necessary to enlist specially for these appointments in certain units, but the terms of service in all cases should be the same, and Commanding Officers should be empowered to advance suitable men to higher scales of pay according to their qualifications. A limited establishment of technical N. C. Os. should be allotted, such as Pioneer Daffadar (or Havildar), and Shoemaker and Tailor Naiks.

In this way there would be some encouragement for ambition, and incentive to attain proficiency. The artificers should be fully trained sowars and sepoys, and should invariably carry out their annual musketry course.

The caste question should not raise any insurmountable difficulties in any of the above categories of men.

### **3. Minor Regimental Trades.**

Regimental Bhistis and Cooks (Langris) are also personnel who should be drawn from the ranks and not engaged as followers. They should draw extra duty pay to encourage them to work and improve, but should not be employed at these duties for too long, so that other ranks could learn their duties, and thus form a reserve in the unit. Selected men should be given opportunities to attend courses of instruction in cooking in barracks and field service conditions.

The Regimental Barber is a necessary but unauthorized person who, at any rate in the majority of regiments, might be drawn from the ranks, instead of being a mere follower.

### **4. Substitutes for Private Followers.**

A certain number of men of every unit should be trained as Officers, Servants, or Batmen, entirely to replace private bearers

and mess servants in the field, so as to avoid the necessity of having with every unit numerous untrained and defenceless persons, whose status is very unsatisfactory, and whose replacement is more than difficult.

These Batmen, in the course of their training, should be allowed to attend short cooking classes to learn the rudiments of the preparation of European food, as the British Officer on service is often entirely dependent on the crude culinary knowledge of his orderly or bearer.

The number of men so trained in a unit should allow for batmen to officers seconded to the Staff, as the necessity of reducing the numbers of non-combatants is as great in Head Quarters of formations as it is in regiments. Batmen with seconded officers should themselves be considered as seconded, and should be replaced in units, but no man ought to be permitted to remain away from a regiment for more than one year.

The private syce also should not be a necessity. Men are required to look after Lewis Gun mules, and should be required to attend to officers' chargers even in peace time.

Courses in animal management would be welcomed in Infantry battalions for officers and men. The addition of a sweeper to help in the animal lines would spare the feelings of the Infantryman, as in cavalry units little of the line-cleaning is done by the sowar.

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Dhobies and Sweepers are both essential to units even on service. It must be admitted that Commanding Officers would find it impossible to supply trained soldiers for the duties of either of these. Consequently they must remain on as menials. The best solution for the difficulties of provision of these classes appears to rest in attestation (Regimentally) in peace time, but only after strict medical examination. Scales of pay should be fixed for all regiments, and C. Os. allowed to increase within the scale for length of service or good work. A limited amount of simple drill under the Sanitary N. C. O. should instill sufficient discipline and keep the menials fit.

**6. Necessary Increase in Establishments.**

From the above analysis it appears that an Indian unit could take the field without any followers, private or public, except Dhobies, Sweepers and possibly Barbers. But in order to provide for the other 'Technical Men' (*i. e.* Batmen, Tailors, Cooks, etc) the establishments of units will require to be increased by a similar number of men, plus about 5% for leave vacancies and casualties. This increase involves an addition in the military budget of the country, and therefore requires proof of justification.

**7. Finance and Efficiency. -**

It is, however, argued that the Financial effect of this augmentation is not out of proportion to the gain in efficiency. On several occasions in France, British batmen were hurriedly but successfully called upon to form a reserve line of defence. In Mesopotamia in emergencies all available sepoys with the second line were required for defence purposes, and these duties would have been considerably lightened if officers' servants had been capable of bearing arms and taking their turns in the perimeter. It is also interesting and instructive to recall how General Sale in April 1842 was able to employ his full strength to sally out of Jalaabad and severely defeat the Afghans, because he had armed and trained his followers sufficiently to hold the town in his absence.

The extra establishment allowed for 'Technical Men' would thus constitute a useful reserve in place of the present mass of followers, each of whom consumes his ration, but can give no real help in a crisis. In Frontier Warfare in particular the benefits of this exchange would be felt, as these 'Technical Men' would form a very considerable part of the baggage guard who have, up to now, always had to be taken from the main body to look after the baggage and the followers themselves.

The useless, straggling line of followers, which encumbers and endangers every column on service, would thus practically become a thing of the past. And this fact alone should surely justify far more extra expenditure than would be required for

this increase in establishment! The additional pay to men employed as Batmen and Horse Attendants would be found by the officers concerned at certain fixed rates, and would not constitute a charge to Government, who would only be responsible for the actual regimental pay.

### **8. Position of British Unit Followers.**

The above 'Scheme', if these proposals deserve such a title, could not be made applicable to British units in India, as it would not be desirable to have Indian fighting men serving in these capacities along side with British troops. Possibly a 'Corps of Military Servants' might be organized to meet their requirements, but the question does not come into the subject under discussion.

### **10. Investigation of Requirements of Indian Units.**

For Indian units of Cavalry, Artillery, Sappers & Miners, Supply & Transport Corps, and the Medical Services (though the personnel of the last-named are still classified as followers) the inclusion, i. e., the recognized inclusion of certain 'Technical Men' is badly required. So, while war is still fresh in our minds, it is suggested that the whole question of establishments should be seriously considered. The most satisfactory means of fixing scales would be the formation of a committee, composed to a great extent of officers from selected Indian units recruited from various classes from all parts of the country, to make proposals regarding peace and war establishments, and rates of pay for 'Technical Men' and Followers. The regimental representatives need not necessarily be commandants, for the inclusion of some of the younger generation, who have been regimental officers for the greater part of the war, would be a real asset, for they, as Adjutants and Quarter Masters in depots and in the field, have come into really close contact with the difficulties of the followers question. A proportion of Indian Officers would also be invaluable, as their knowledge of regimental requirements and of caste distinctions would ensure the practicability of any proposals put forward.

## **ROYAL ARMY SERVICE CORPS SALVAGE IN FRANCE.**

BY LIEUT.-COLONEL R. H. PALIN,  
*Cantonment Magistrates Department*

(Late Assistant Controller of Salvage, G. H. Q, France.)

It would not be possible within the scope of a short article to give more than a general survey of the extent to which Salvage operations, or more correctly "saving of waste," have been carried out by the R.-A. S. C. in France. To do so would be to impose on the reader a mass of figures, which, however imposing they might appear in print, could not be digested without considerable application and would therefore not be appreciated.

The information which is given is intended, therefore, to show that, wherever it has been possible to do so, the "waste" of any article of "Supply" or of "Transport" has been rigidly eschewed.

### **SUPPLIES.**

The soldier's ration in the Field is so carefully calculated as to quantity that, while no complaint could be made as to its sufficiency, there is little likelihood of much being left over at the end of the day. All rations which have been drawn surplus to requirements are balanced by a corresponding under-drawal in the next issue, and any that may have had to be abandoned by a Unit are taken over by the nearest Supply Officer. While, therefore, in an effort to visualize the possibilities of salvaging vast stocks of food, remnants from the daily meals of our huge armies, the mind naturally harks back to the first properly authenticated case of the salvage of supplies, when after the feeding of the five thousand, twelve baskets full of fragments were collected, the supply officer who counted on salvage of this nature to replenish his stocks of food would be doomed to disappointment. Private Jack Spratt may indeed eat no fat, but, in the absence of his wife, his friend Private Smith is only too glad to come to his aid, and between them the mess-tins of both are scraped pretty clean at the end of each meal. Where, then, can salvage find a field

for operations in the supply branch of our armies in France? The answer to this question will be found not so much in the forward areas as in the depots and camps on the lines of communication and at base ports. In the early days of the war, before the "U" boat menace was ever dreamed of and when supplies of all natures were in super-abundance, little or no heed was given to the preservation of the various cases, crates, barrels and sacks which, under the general name of "containers," are required for the packing and transportation of foodstuffs for man and beast, and for the heavy oils and petrol; the steady and uninterrupted supply of which is the very life-blood of the fighting machine.

It is difficult to say when the necessity for returning "containers" to the sources of supply first became an urgent matter, but a routine order, issued in January, 1915, calling attention to the great importance of returning all empty petrol tins to the base for refilling in England, perhaps fixes the date of the commencement of the extensive salvage operations of this nature of supplies which are now in being. A visit to one of the great Base Supply Depots would afford the observer an insight into the variety and number of cases, bottles, jars, tins, drums, sacks, and casks which are collected there for re-shipment to England. The major portion of these is collected from the Lines of Communication areas. Comparatively few come down from the armies in the field, although an appreciable number is returned from supply railheads.

The exception to this is petrol tins: a large number of these are retained by the armies for carrying water, but great care is exercised that any not required for this purpose are returned to the bases. Cases and crates fare otherwise. True it is that when supplies are issued in what are termed "non-returnable cases" the wood in these cases may be reckoned as part of the soldier's fuel ration, and that every effort is made to ensure the return of other natures; yet it would be an optimistic supply officer who looked for the return of any case or crate once it had left the refilling point, the distributing centre for the troops. The packing-case



is a familiar and much sought after article for other purposes than fuel, and the requirements of dug-out and "bivvy" in the matter of furniture are adequately met by the handy wooden box, which, if it cannot vie in appearance and comfort with the luxurious and artistic productions of the Tottenham Court Road, or the "X" pattern contraptions of the Army and Navy Stores, at any rate meets the immediate requirements of the moment without any expense or trouble to its temporary owner.

Supply containers, once they have arrived at the base ports, are despatched to Deptford or Reading, from whence they are distributed to the various contracting firms.

There is no standardized size or pattern of case, although the size of some, for instance the "Pork and Bean" case, does not vary. All are used indiscriminately on the return journey for packing bottles and jars which have to be sent to England. Latterly, to meet the situation produced by the shortage of shipping space, cases have been "broken down," and the tops, bottoms and sides, packed in flat bundles termed "shooks" have been sent over in great quantities to the case-making factories in England. Indeed, at one time in the autumn of last year the demand for case wood was so great that pieces as small as 9 inches long by 2 inches wide were asked for.

Since the Armistice large quantities of containers have been set aside for use by other departments in packing stores which have to be returned to England, while even prior to this it was frequently found that good use could be made by other departments of any class of package, the return of which to England was not demanded.

A typical example was the old pattern iron ration tins, which, on replacement by the new pattern, had accumulated in great quantities. These were found to be very suitable for packing small spare parts of motor vehicles, and numbers were used for this and other similarly useful purposes.

Petrol tins are a very valuable form of container, the two gallon type costing about two shillings and four pence each. Petrol tins are not now returned to England; they are sent to petrol

depots on the Northern and Southern Lines of Communication to be cleaned and refilled. Many, of course, are found to be in need of repair, and the depots are properly equipped to do this. Even then the accumulations of unrepairable tins are very considerable, and machinery is being installed to cut up the tins into sheets for sale as tin plate, and to secure the valuable solder used in their construction.

Fish and oil barrels, rum kegs and casks are also returned to England, and since the inception of the fat extracting installations, of which mention will be made later, many are used for packing the fats which are prepared at these places.

Sacks are collected in large numbers, and the Salvage returns in which they are accounted for show that as many as 15 different kinds are employed. Many are returned to England, as for instance, flour sacks; oat sacks are retained in France to bag the oats which arrive in bulk. Bread sacks are sent direct to the bakeries, where they are washed and made ready for re-issue. The "Hessian" wrappers used for packing meat and bacon are also returned as also the "Hessian" covers of tea chests. Unserviceable sacks and wrappers, commonly known under the trade name of "Gunny," are sold in France or England. Those in good condition are mended for use again as sacks, while those no longer capable of repair are disposed of to paper manufacturers. It is interesting to note that a recent buyer of "Gunny" in France intended to ship his purchases to Algiers, there to be made up into mattresses for sale to the Arabs of Northern Africa. Empty bottles arrive in great quantities at the Base Ports, as many as 30,000 ale and stout bottles arriving at one depot in the space of a month. Champagne, brandy, and burgundy bottles, which come from the hospitals, are sent direct to the French wine merchants, who supply Government. All other natures of bottles, except soda water bottles, are sent to England.

About the autumn of 1916 the high price of solder drew attention to the fact that a good supply of this alloy was ready to hand in the tins in which preserved meats and jams were issued to the troops. The price of solder at one time rose as high as £180 per

### ***Salvage in France.***

ton. Steps were therefore taken to collect tins containing solder, and these were treated in simply constructed kilns. The ubiquitous bully beef tin responded generously to the demand, and the yield from a hundred tins has been as much as 3lb. of solder.

The shortage of tin-plate introduced another item of valuable salvage, and tins of the nature of large biscuit and tea tins, instead of being thrown away as formerly was so often their fate, are now cut up into sheets and sold in France. The shortage of tin-plate during 1918 led to the introduction of the waxed paper or "carton" container for packing jams. These are collected and returned to England, where the wax is extracted and the paper returned to the makers for re-pulping.

Salvage of "Supplies" is not, however, confined to the preservation and re-use of containers. Although the soldier's ration is undoubtedly calculated to give no very wide margin of excess in quantity, it has been found possible to effect very large savings from the scraps of meat, bones, and kitchen refuse which the collective cooking and consumption of a large number of rations inevitably entails.

Early in 1916 the possibility of securing valuable materials from this source was recognized, and a series of fat extracting plants were installed. Every Unit was instructed to save as much of the "dripping" as was not required for cooking, and to collect all bones and kitchen refuse. The bones and pieces of meat, when treated in the fat extracting plants, yield very large quantities of fats and dripping, which are transhipped to England and used for human consumption or in the manufacture of glycerine for munition purposes.

Bones serve many useful purposes, and also form the basis for manure and chicken food. The "swill" provides food for pigs, thereby adding an additional source of meat ration for the troops,

Many other "by-products" are realized from damaged supplies, and from the inevitable spillings and wastage in handling large quantities of stores. At the large bakeries at the bases the dough scrapings left after the bread has been kneaded, added to

flour sweepings and the crumbs from the bread stores, are resold for poultry and cattle food, or for paste in the doll making trade, as well as for the manufacture of "Stick Phast" and dog biscuits. Even the wood ashes from the furnaces find a market and realize as much as thirty shillings a ton. The flour sacks themselves are treated in sack beating machines; the average amount of flour used daily is 120 tons, and the yield from this process is sometimes as high as 500 lb.

Tea sweepings are collected and, if fit for the purpose, are sold for human consumption. If they are wet or burnt a market can be found for them for extracting theobromine, a product of the pharmaceutical trade. The damaged sugar from iron rations goes to make syrups or to the manufacture of alcohols, damaged dried fruits being similarly used. Hay, oat, linseed, bran, and rice sweepings, or any damaged stocks of these supplies, are put to some useful purpose or sold to an advantage to the State. Rice sweepings may serve as an illustration; the outer husk of the better qualities is removed and the rice then sold for human consumption, those of inferior quality being disposed of for the manufacture of forage substitutes.

Live sheep and goats for the Indian troops are skinned of their fleeces before being despatched to the slaughter house, the wool and the skin subsequently obtained from the dead animal realizing a considerable sum of money. The humble rabbit skin is not overlooked, and during 1917 at one depot alone 129,000 of these were sold at the rate of 16 francs per 100, the price in 1918 rising to 26 francs 50 centimes per 100 skins.

Waste oil, including the leakages from tins, was found to be a very useful commodity in connection with the furnaces of Motor Transport Heavy Repair and Ordnance Workshops, and could be advantageously used without filtration for making gas. In February, 1917, orders were issued that all waste oils should be collected wherever possible, and at the bases alone as much as 2,000 gallons has been collected over a period of 6 months. Waste oil of this nature is also sent down from units at the front but the special conditions existing in the forward areas naturally did not

admit of any very great quantity being realized from this source.

At the large Petrol Depots on the Lines of Communication, spilled lubricating oils from the filling sheds, or waste oils obtained from the cleaning of drums and barrels returned from railheads, are carefully collected and treated in Wakefield filters, the result being a "General Service oil" which has been used to great advantage.

Enough has been written, however, to show that no effort has been spared to practise economy wherever it has been possible to do so, and the critic would find it difficult to lay his finger on any source or article of supply where salvage operations have not already been exploited to the limits of their capacity.

#### TRANSPORT.

Royal Army Service Corps Transport comprises both horse-drawn and mechanically-driven road vehicles. Railway, river and sea transport are controlled by other departments. By one of those anomalies peculiar to Army administration the horses, vehicles, and equipment of horse drawn transport are provided by other departments, the Remount Department in the case of horses and the Royal Army Ordnance Corps in respect of the vehicles, equipment, and harness.

The Army Service Corps is consequently only in the position of user of the property of other departments. On the principle, therefore, of rendering unto Caesar the things that are Caesar's, no credit is claimed by the Corps for the salvage of either the animals or material in their charge.

Mechanical Transport may be said, however, to be the property of the Corps, and the channel of supply of vehicles and spare parts to units in the field is the same as that for returning damaged or worn out vehicles and material. "Salvage," as far as the Mechanical Transport is concerned, is not, however, a recognized term except in case where vehicles are rendered completely unserviceable by enemy or other action. Vehicles are normally run in field units until they require complete and extensive overhaul, when they are evacuated to repair shops at the Base. In each Army there is a Mobile Repair

Unit, equipped with specially fitted first-aid lorries which are used for salving vehicles damaged by shell fire, or otherwise. In practice, however, field units are capable of carrying out the salvage of their own vehicles. A salvaged vehicle is evacuated to a repair shop dealing with that particular make, and is there stripped down, all serviceable parts being taken into store for use in the repair of other vehicles.

There are five Heavy Repair Shops installed in France. One of these, the 4th Heavy Repair Shop, calls for special notice as it has been in great part devoted to the retrieval of salvaged and worn out parts of all natures of Mechanical Transport. The repairs to lorries, tractors, and caterpillars are dealt with in the 1st, 2nd, and 5th Repair Shops, while the 3rd Heavy Repair Shop deals with cars and ambulances. At the commencement of the War no very extensive field of operations for the salvage of Mechanical Transport was recognized, other than as outlined above, and the energies of this branch of the Royal Army Service Corps were directed more to the recovery of such parts of a damaged vehicle as were found capable of immediate re-use than to the retrieval of damaged or worn parts.

As the war progressed, however, the question of the retrieval of worn or damaged parts was forcibly brought to notice by the enormous demand on the stocks of new parts and material. For this purpose No. 4 Heavy Repair Shop was converted into a factory to deal with such material. It would be impossible in the limits of an article of this nature to give the reader any more than a very superficial survey of the work of this institution. worn out or damaged specimens of every part of the various types of motor vehicle in use by our armies find their way sooner or later to the 4th Heavy Repair Workshops, to emerge later either in a condition similar to that in which they first left the factories in England or America, or converted by some magical process into parts of an entirely different class of vehicle from that for which they were originally intended.

The conversion of rear axle driving shafts of large enough diameter into light car shafts may be given as a typical example,

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**7. Finance and Efficiency. -**

It is, however, argued that the Financial effect of this augmentation is not out of proportion to the gain in efficiency. On several occasions in France, British batmen were hurriedly but successfully called upon to form a reserve line of defence. In Mesopotamia in emergencies all available sepoys with the second line were required for defence purposes, and these duties would have been considerably lightened if officers' servants had been capable of bearing arms and taking their turns in the perimeter. It is also interesting and instructive to recall how General Sale in April 1842 was able to employ his full strength to sally out of Jalalabad and severely defeat the Afghans, because he had armed and trained his followers sufficiently to hold the town in his absence.

The extra establishment allowed for 'Technical Men' would thus constitute a useful reserve in place of the present mass of followers, each of whom consumes his ration, but can give no real help in a crisis. In Frontier Warfare in particular the benefits of this exchange would be felt, as these 'Technical Men' would form a very considerable part of the baggage guard who have, up to now, always had to be taken from the main body to look after the baggage and the followers themselves.

The useless, straggling line of followers, which encumbers and endangers every column on service, would thus practically become a thing of the past. And this fact alone should surely justify far more extra expenditure than would be required for

this increase in establishment! The additional pay to men employed as Batmen and Horse Attendants would be found by the officers concerned at certain fixed rates, and would not constitute a charge to Government, who would only be responsible for the actual regimental pay.

### **8. Position of British Unit Followers.**

The above 'Scheme', if these proposals deserve such a title, could not be made applicable to British units in India, as it would not be desirable to have Indian fighting men serving in these capacities along side with British troops. Possibly a 'Corps of Military Servants' might be organized to meet their requirements, but the question does not come into the subject under discussion.

### **10. Investigation of Requirements of Indian Units.**

For Indian units of Cavalry, Artillery, Sappers & Miners, Supply & Transport Corps, and the Medical Services (though the personnel of the last-named are still classified as followers) the inclusion, i. e., the recognized inclusion of certain 'Technical Men' is badly required. So, while war is still fresh in our minds, it is suggested that the whole question of establishments should be seriously considered. The most satisfactory means of fixing scales would be the formation of a committee, composed to a great extent of officers from selected Indian units recruited from various classes from all parts of the country, to make proposals regarding peace and war establishments, and rates of pay for 'Technical Men' and Followers. The regimental representatives need not necessarily be commandants, for the inclusion of some of the younger generation, who have been regimental officers for the greater part of the war, would be a real asset, for they, as Adjutants and Quarter Masters in depots and in the field, have come into really close contact with the difficulties of the followers question. A proportion of Indian Officers would also be invaluable, as their knowledge of regimental requirements and of caste distinctions would ensure the practicability of any proposals put forward.

## **ROYAL ARMY SERVICE CORPS SALVAGE IN FRANCE.**

BY LIEUT.-COLONEL R. H. PALIN,

*Cantonment Magistrates Department*

(Late Assistant Controller of Salvage, G. H. Q, France.)

It would not be possible within the scope of a short article to give more than a general survey of the extent to which Salvage operations, or more correctly "saving of waste," have been carried out by the R.-A. S. C. in France. To do so would be to impose on the reader a mass of figures, which, however imposing they might appear in print, could not be digested without considerable application and would therefore not be appreciated.

The information which is given is intended, therefore, to show that, wherever it has been possible to do so, the "waste" of any article of "Supply" or of "Transport" has been rigidly eschewed.

### **SUPPLIES.**

The soldier's ration in the Field is so carefully calculated as to quantity that, while no complaint could be made as to its sufficiency, there is little likelihood of much being left over at the end of the day. All rations which have been drawn surplus to requirements are balanced by a corresponding under-drawal in the next issue, and any that may have had to be abandoned by a Unit are taken over by the nearest Supply Officer. While, therefore, in an effort to visualize the possibilities of salvaging vast stocks of food, remnants from the daily meals of our huge armies, the mind naturally harks back to the first properly authenticated case of the salvage of supplies, when after the feeding of the five thousand, twelve baskets full of fragments were collected, the supply officer who counted on salvage of this nature to replenish his stocks of food would be doomed to disappointment. Private Jack Spratt may indeed eat no fat, but, in the absence of his wife, his friend Private Smith is only too glad to come to his aid, and between them the mess-tins of both are scraped pretty clean at the end of each meal. Where, then, can salvage find a field

for operations in the supply branch of our armies in France? The answer to this question will be found not so much in the forward areas as in the depots and camps on the lines of communication and at base ports. In the early days of the war, before the "U" boat menace was ever dreamed of and when supplies of all natures were in super-abundance, little or no heed was given to the preservation of the various cases, crates, barrels and sacks which, under the general name of "containers," are required for the packing and transportation of foodstuffs for man and beast, and for the heavy oils and petrol, the steady and uninterrupted supply of which is the very life-blood of the fighting machine.

It is difficult to say when the necessity for returning "containers" to the sources of supply first became an urgent matter, but a routine order, issued in January, 1915, calling attention to the great importance of returning all empty petrol tins to the base for refilling in England, perhaps fixes the date of the commencement of the extensive salvage operations of this nature of supplies which are now in being. A visit to one of the great Base Supply Depots would afford the observer an insight into the variety and number of cases, bottles, jars, tins, drums, sacks, and casks which are collected there for re-shipment to England. The major portion of these is collected from the Lines of Communication areas. Comparatively few come down from the armies in the field, although an appreciable number is returned from supply railheads.

The exception to this is petrol tins: a large number of these are retained by the armies for carrying water, but great care is exercised that any not required for this purpose are returned to the bases. Cases and crates fare otherwise. True it is that when supplies are issued in what are termed "non-returnable cases" the wood in these cases may be reckoned as part of the soldier's fuel ration, and that every effort is made to ensure the return of other natures; yet it would be an optimistic supply officer who looked for the return of any case or crate once it had left the refilling point, the distributing centre for the troops. The packing-case

***Salvage in France.***

is a familiar and much sought after article for other purposes than fuel, and the requirements of dug-out and "bivvy" in the matter of furniture are adequately met by the handy wooden box, which, if it cannot vie in appearance and comfort with the luxurious and artistic productions of the Tottenham Court Road, or the "X" pattern contraptions of the Army and Navy Stores, at any rate meets the immediate requirements of the moment without any expense or trouble to its temporary owner.

Supply containers, once they have arrived at the base ports, are despatched to Deptford or Reading, from whence they are distributed to the various contracting firms.

There is no standardized size or pattern of case, although the size of some, for instance the "Pork and Bean" case, does not vary. All are used indiscriminately on the return journey for packing bottles and jars which have to be sent to England. Latterly, to meet the situation produced by the shortage of shipping space, cases have been "broken down," and the tops, bottoms and sides, packed in flat bundles termed "shooks" have been sent over in great quantities to the case-making factories in England. Indeed, at one time in the autumn of last year the demand for case wood was so great that pieces as small as 9 inches long by 2 inches wide were asked for.

Since the Armistice large quantities of containers have been set aside for use by other departments in packing stores which have to be returned to England, while even prior to this it was frequently found that good use could be made by other departments of any class of package, the return of which to England was not demanded.

A typical example was the old pattern iron ration tins, which, on replacement by the new pattern, had accumulated in great quantities. These were found to be very suitable for packing small spare parts of motor vehicles, and numbers were used for this and other similarly useful purposes.

Petrol tins are a very valuable form of container, the two gallon type costing about two shillings and four pence each. Petrol tins are not now returned to England; they are sent to petrol

depots on the Northern and Southern Lines of Communication to be cleaned and refilled. Many, of course, are found to be in need of repair, and the depots are properly equipped to do this. Even then the accumulations of unrepairable tins are very considerable, and machinery is being installed to cut up the tins into sheets for sale as tin plate, and to secure the valuable solder used in their construction.

Fish and oil barrels, rum kegs and casks are also returned to England, and since the inception of the fat extracting installations, of which mention will be made later, many are used for packing the fats which are prepared at these places.

Sacks are collected in large numbers, and the Salvage returns in which they are accounted for show that as many as 15 different kinds are employed. Many are returned to England, as for instance, flour sacks; oat sacks are retained in France to bag the oats which arrive in bulk. Bread sacks are sent direct to the bakeries, where they are washed and made ready for re-issue. The "Hessian" wrappers used for packing meat and bacon are also returned as also the "Hessian" covers of tea chests. Unserviceable sacks and wrappers, commonly known under the trade name of "Gunny," are sold in France or England. Those in good condition are mended for use again as sacks, while those no longer capable of repair are disposed of to paper manufacturers. It is interesting to note that a recent buyer of "Gunny" in France intended to ship his purchases to Algiers, there to be made up into mattresses for sale to the Arabs of Northern Africa. Empty bottles arrive in great quantities at the Base Ports, as many as 30,000 ale and stout bottles arriving at one depot in the space of a month. Champagne, brandy, and burgundy bottles, which come from the hospitals, are sent direct to the French wine merchants, who supply Government. All other natures of bottles, except soda water bottles, are sent to England.

About the autumn of 1916 the high price of solder drew attention to the fact that a good supply of this alloy was ready to hand in the tins in which preserved meats and jams were issued to the troops. The price of solder at one time rose as high as £180 per



### ***Salvage in France.***

ton. Steps were therefore taken to collect tins containing solder, and these were treated in simply constructed kilns. The ubiquitous bully beef tin responded generously to the demand, and the yield from a hundred tins has been as much as 3lb. of solder.

The shortage of tin-plate introduced another item of valuable salvage, and tins of the nature of large biscuit and tea tins, instead of being thrown away as formerly was so often their fate, are now cut up into sheets and sold in France. The shortage of tin-plate during 1918 led to the introduction of the waxed paper or "carton" container for packing jams. These are collected and returned to England, where the wax is extracted and the paper returned to the makers for re-pulping.

Salvage of "Supplies" is not, however, confined to the preservation and re-use of containers. Although the soldier's ration is undoubtedly calculated to give no very wide margin of excess in quantity, it has been found possible to effect very large savings from the scraps of meat, bones, and kitchen refuse which the collective cooking and consumption of a large number of rations inevitably entails.

Early in 1916 the possibility of securing valuable materials from this source was recognized, and a series of fat extracting plants were installed. Every Unit was instructed to save as much of the "dripping" as was not required for cooking, and to collect all bones and kitchen refuse. The bones and pieces of meat, when treated in the fat extracting plants, yield very large quantities of fats and dripping, which are transhipped to England and used for human consumption or in the manufacture of glycerine for munition purposes.

Bones serve many useful purposes, and also form the basis for manure and chicken food. The "swill" provides food for pigs, thereby adding an additional source of meat ration for the troops,

Many other "by-products" are realized from damaged supplies, and from the inevitable spillings and wastage in handling large quantities of stores. At the large bakeries at the bases the dough scrapings left after the bread has been kneaded, added to

flour sweepings and the crumbs from the bread stores, are resold for poultry and cattle food, or for paste in the doll making trade, as well as for the manufacture of "Stick Phast" and dog biscuits. Even the wood ashes from the furnaces find a market and realize as much as thirty shillings a ton. The flour sacks themselves are treated in sack beating machines; the average amount of flour used daily is 120 tons, and the yield from this process is sometimes as high as 500 lb.

Tea sweepings are collected and, if fit for the purpose, are sold for human consumption. If they are wet or burnt a market can be found for them for extracting theobromine, a product of the pharmaceutical trade. The damaged sugar from iron rations goes to make syrups or to the manufacture of alcohols, damaged dried fruits being similarly used. Hay, oat, linseed, bran, and rice sweepings, or any damaged stocks of these supplies, are put to some useful purpose or sold to an advantage to the State. Rice sweepings may serve as an illustration; the outer husk of the better qualities is removed and the rice then sold for human consumption, those of inferior quality being disposed of for the manufacture of forage substitutes.

Live sheep and goats for the Indian troops are shorn of their fleeces before being despatched to the slaughter house, the wool and the skin subsequently obtained from the dead animal realizing a considerable sum of money. The humble rabbit skin is not overlooked, and during 1917 at one depot alone 129,000 of these were sold at the rate of 16 francs per 100, the price in 1918 rising to 26 francs 50 centimes per 100 skins.

Waste oil, including the leakages from tins, was found to be a very useful commodity in connection with the furnaces of Motor Transport Heavy Repair and Ordnance Workshops, and could be advantageously used without filtration for making gas. In February, 1917, orders were issued that all waste oils should be collected wherever possible, and at the bases alone as much as 2,000 gallons has been collected over a period of 6 months. Waste oil of this nature is also sent down from units at the front but the special conditions existing in the forward areas naturally did not

admit of any very great quantity being realized from this source.

At the large Petrol Depots on the Lines of Communication, spilled lubricating oils from the filling sheds, or waste oils obtained from the cleaning of drums and barrels returned from railheads, are carefully collected and treated in Wakefield filters, the result being a "General Service oil" which has been used to great advantage.

Enough has been written, however, to show that no effort has been spared to practise economy wherever it has been possible to do so, and the critic would find it difficult to lay his finger on any source or article of supply where salvage operations have not already been exploited to the limits of their capacity.

#### TRANSPORT.

Royal Army Service Corps Transport comprises both horse-drawn and mechanically-driven road vehicles. Railway, river and sea transport are controlled by other departments. By one of those anomalies peculiar to Army administration the horses, vehicles, and equipment of horse drawn transport are provided by other departments, the Remount Department in the case of horses and the Royal Army Ordnance Corps in respect of the vehicles, equipment, and harness.

The Army Service Corps is consequently only in the position of user of the property of other departments. On the principle, therefore, of rendering unto Caesar the things that are Caesar's, no credit is claimed by the Corps for the salvage of either the animals or material in their charge.

Mechanical Transport may be said, however, to be the property of the Corps, and the channel of supply of vehicles and spare parts to units in the field is the same as that for returning damaged or worn out vehicles and material. "Salvage," as far as the Mechanical Transport is concerned, is not, however, a recognized term except in case where vehicles are rendered completely unserviceable by enemy or other action. Vehicles are normally run in field units until they require complete and extensive overhaul, when they are evacuated to repair shops at the Base. In each Army there is a Mobile Repair

Unit, equipped with specially fitted first-aid lorries which are used for **salving** vehicles damaged by shell fire, or otherwise. In practice, however, field units are capable of carrying out the **salvage** of their own vehicles. A salvaged vehicle is evacuated to a repair shop dealing with that particular make, and is there **stripped down**, all serviceable parts being taken into store for use in the repair of other vehicles.

There are five Heavy Repair Shops installed in France. One of these, the 4th Heavy Repair Shop, calls for special notice as it has been in great part devoted to the retrieval of **salved** and worn out parts of all natures of Mechanical Transport. The repairs to lorries, tractors, and caterpillars are dealt with in the 1st, 2nd, and 5th Repair Shops, while the 3rd Heavy Repair Shop deals with cars and ambulances. At the commencement of the War no very extensive field of operations for the salvage of Mechanical Transport was recognized, other than as outlined above, and the energies of this branch of the Royal Army Service Corps were directed more to the recovery of such parts of a damaged vehicle as were found capable of immediate re-use than to the retrieval of damaged or worn parts.

As the war progressed, however, the question of the retrieval of worn or damaged parts was forcibly brought to notice by the enormous demand on the stocks of new parts and material. For this purpose No. 4 Heavy Repair Shop was converted into a factory to deal with such material. It would be impossible in the limits of an article of this nature to give the reader any more than a very superficial survey of the work of this institution. worn out or damaged specimens of every part of the various types of motor vehicle in use by our armies find their way sooner or later to the 4th Heavy Repair Workshops, to emerge later either in a condition similar to that in which they first left the factories in England or America, or converted by some magical process into parts of an entirely different class of vehicle from that for which they were originally intended.

The conversion of rear axle driving shafts of large enough diameter into light car shafts may be given as a typical example,

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damaged lorry or other shafts of a like nature being converted for use in Daimler and Sunbeam cars, to be again converted to Ford and Singer shafts when next they make a re-appearance at the shops. It is to be feared, however, that the wave of democracy has not yet spread to the 4th Heavy Repair Workshops, and it is only in a descending scale of social standing in the motor world that each part makes its reappearance, and no record can be traced of the worn-out shafts of the humble but terribly useful Ford car being converted for use in the repair of the lordly Rolls-Royce.

A typical example of salvage work is seen in the repair of damaged radiators, and by the simple process of extracting serviceable pieces from two or three partially damaged radiators of the same pattern a perfectly new radiator is manufactured. Instances of a like nature could be multiplied by the score did space permit. The reader, however, will judge for himself the wonderful extent of the salvage operations carried out when he learns that almost the entire demand of the works for raw material is derived from the scrapped metal of damaged and worn out cars, and that the weekly average value of the output of retrieved articles, calculated even at pre-war prices, is as high as £14,000. No finer instance of the value of Salvage can be found than the work of the 4th Heavy Repair Workshops, and this must be the excuse for giving it prominence.

This article has endeavoured to show that the Royal Army Service Corps has, in every detail of its administration, endeavoured to eliminate waste and bring back to use every ounce of material, whether of "Supply" or "Transport," that can be made to serve a useful purpose or lessen the burden of taxation imposed on the nation by that most costly of all undertakings, a great War.

## **MORE ABOUT STOKES MORTARS AS A CAVALRY WEAPON.**

By

L.T. COLONEL. B. ABBAY 27TH LIGHT CAVALRY.

Recently two instances occurred on the Frontier showing the valuable moral effect of the Stokes Gun.

Murtaza post was sniped by a gang of enemy, a Cavalry Stokes was sent up and a few rounds were fired to range on a nulla much used by tribesmen as a line of approach.

The gang at once departed and has left Murtaza alone.

A gang entered Draban and being atonce ejected, rallied in a nulla preparatory to attacking again. A Stokes in the fort had been laid on this nulla as it is a usual line of advance of the tribesmen, who show a vary marked preference for covered ways of advance, and two shells were dropped close to the gang.

The gang immediately bolted leaving a corpse.

This use of the Stokes to command nullas, dead ground, and lines of approach is the correct procedure as regards posts and camps. Aiming posts are easily arranged.

The fact recently brought out in the October number of the U. S. Journal that the Stokes can fire beyond 1000 yards is of the greatest importance to cavalry as it can thus supply very valuable covering fire, and a regiment that cannot take its Stokes to within 1000 yds of hill men is not worthy of the name of cavalry.

Once again the moral effect of high angle shells is immense.

One rule must be remembered; that is, never take a Stokes into the firing line until the firing line and flanks have been established in accordance with frontier tactics.

A most delightful memento to leave behind is a shell with the tape removed, but great care is required in preparing this souvenir.

The complete disappearance of a man, and a decimated flock of goats bear witness to the potency of this bequest.

Practice has shewn that really fit, keen men can take a Stokes anywhere in the Hills that a Hotchkiss can go, but not at a fast pace. I refer to dismounted action.

### **Stokes Mortars.**

The gun can be got into action from the horse in one and a half minutes (this does not include digging in the base plate).

In a retirement the Stokes is of especial value.

Taken close to the firing line or picquet every nulla, every line of approach, and all dead ground within 1000 yards can be searched, and if the wiles known to every frontier fighter are adopted the enemy will be kept at a comfortable distance and a gentlemanly retirement can be carried out instead of the rabbit like scuttle so characteristic of many frontier withdrawals, due to the tribesmen having worked in so close through bad country that they can open fire on the retiring troops before the latter have got clear.

The cavalry Stokes could also be used with the infantry on the advance of a column into the hills, a time when there is little employment for cavalry.

This would prevent a depletion of rifles from the firing line to find teams for Stokes guns.

The pistol head is, in the writer's opinion, not suitable for Cavalry work; it is too delicate.

Photographs of the equipment used by the 27th. Light Cavalry are published with this article. It is entirely made in the regimental workshops and could be made much lighter if first class materials were available.

The iron cage for carrying ammunition has answered requirements, but a leather carrier as supplied to the Mountain Batteries is the proper solution. The use of leather shell carriers would simplify the ammunition supply from the horse to the gun.

The opening and closing of the very inferior ammunition boxes is not only difficult but unsound.

Suggestions for Cavalry Stokes Gun Drill follow. For these the writer is indebted to the late Lieut. Hillier, a Stokes Gunner of great and varied experience. They have proved most suitable.

The Stokes gun with its 1000 yards range and heavy bursting charge has come to the frontier to stay. It, coupled with energy, is the solution of the question "How are Cavalry without undue loss to finish off cornered raiding gangs."

***The Stokes Mortar. Mounted Action.***

***1. On the command "Action".***

No. 1. will give the command "No. 1 gun, Action". On the command "Action", the gun team will at once halt. Nos. 1 and 2 will dismount and hand their horses over to No. 5.

No. 3. will gallop forward, dismount and hand over his horse to No. 6. No. 4. will remain mounted.

No. 1. will take out base plate, pick and shovel, and double forward to the position to be taken up.

No. 2. will take off barrel, and No. 3. legs and sandbags. They will double forward to No. 1. and place their loads on the ground. No. 2. will assist No. 1. to dig in the base plate. No. 3. will fill sandbags.

When the base plate is ready, Nos. 2 and 3 will mount barrel and legs. No. 2. will assist No. 1. to set the gun at the correct angle. The feet will be dug in by No. 2. who will also place sandbag on feet and round base cap. No. 3. will double back and get behind cover a short distance behind gun position.

As soon as the gun is unloaded, No. 4. will take horse back to some cover, dismount and hand his horse to No. 6., take out ammunition, and double forward to No. 3. He will at once start assembling a shell. He must wait until No. 1. tells him how many rings are required, before putting on any.

No. 3. will double forward and place shell or shells on the ground about 6" on the right of No. 2.

***2. On the command "Out of Action".***

No. 1. will repeat the order.

No. 4. will give Nos. 5 and 6 a signal to bring led horses forward.

Nos. 1, 2 and 3 will at once dismount gun, and double back with their respective loads to the gun horse and load up on saddle.

No. 4. will double back to ammunition horse and put back any spare shells. No. 1. will load up base plate, No. 2 barrel, No. 3 legs. No. 2 will assist No. 1 to load up pick and shovel. No. 3 will place sandbag in carrier and mount.



**Stokes Mortars.**

As soon as the load is properly loaded, Nos. 1 and 2 will mount. No. 1. will give the necessary orders. No. 6 with ammunition Horse, also Nos. 3 and 4 will fall in rear of Nos. 1, 2 and 3.

1. When 48 rounds are carried, Nos. 6, 7 and 8 also lead ammunition horses; in which case No. 4. should hand his horse over to No. 7.

On the order "Out of Action", spare ammunition horses should not be taken forward unnecessarily.

**PLATE A.**

Base Plate held by quick release strap.

Pick and Shovel held by strap with long loose end to facilitate manipulation.

Tripod held by knob clasps.

Traversing handle held steady by quick release strap.

**PLATE B.**

Gun Barrel held in by knob clasps.

Cleaning Rod carried in metal brackets held by leather buckets connected by strap with button at end to prevent loss and loose loop to facilitate manipulation.

**PLATE C.**

Pick point cut short for lightness and to prevent injury to another horse.

Shovel, tripod and gun well clear of horse.

STOKES MORTAR CARRYING EQUIPMENT.





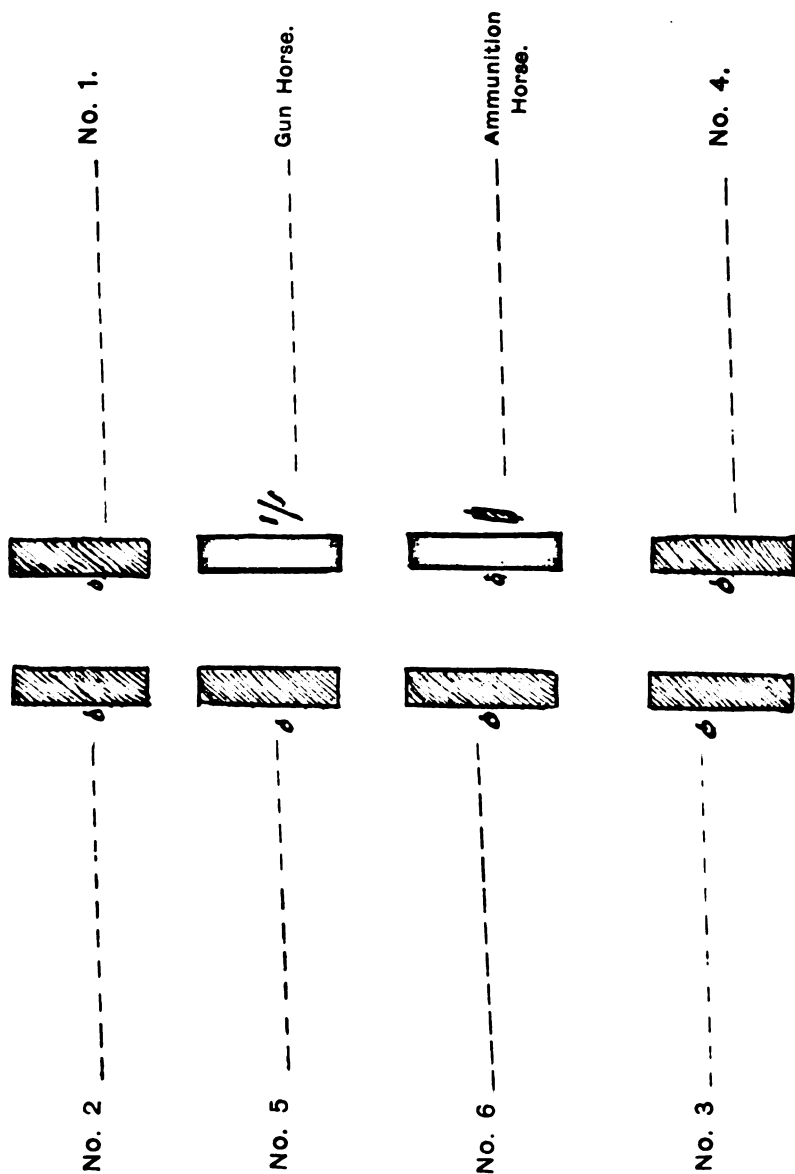
STOKES MORTAR CARRYING EQUIPMENT.



DEPT OF COMMERCE  
BUREAU OF CUSTOMS

# STOKES MORTAR DETACHMENT,

DETACHMENT IN COLUMN.







**DIARY OF EVENTS ON NORTH WEST FRONTIER  
FROM 15TH DECEMBER 1919 TO 14TH MARCH  
1920**

*December 17th*—Escorts to working parties building picquets N. E. of Jandola attacked by considerable numbers enemy who were driven off with loss.

*December 17th*—Aeroplanes carried out bombing raid against Titi Madda Khel and Hasan Khel of upper Kaitu valley, as they continued recalcitrant.

*December 18th*—Derajat Column advanced from Jandola to Mandanna Kach, Enemy consisted of 2000 Mahsuds and 1500 Wazirs. Latter had anticipated advance up Shahur and took no part in action. Opposition less than anticipated. Enemy lost heavily.

*December 19th*—Derajat Column operations to clear hills N. W. of Mandanna Kach were unable to achieve desired result. Hills were strongly held by combined Mahsud and Wazir lashkars, who offered stubborn resistance. Mahsud losses reported to be 120 killed and wounded.

*December 20th*—Derajat Column continued operations commenced on 19th. All objectives taken and permanent picquet established on Sarkai Ridge. Column returned to camp without being followed up. Operation most successful, and enemy suffered considerably more casualties than our troops. Mahsuds later attacked picquet on Sarkai ridge and succeeded in capturing it.

*December 21st*—Derajat Column operations for establishing permanent picquets were progressing favourably when an attack was made by 1000 Mahsuds. Picquet held by 3-34 Pioneers held out against several severe assaults, but became isolated and was forced to withdraw. Two counter-attacks failed to recapture hill. Aeroplanes rendered great assistance. Enemy losses at a low estimate exceeded 200 killed alone.

*December 21st.*—Draband looted by gang 300 strong. Three raiders killed.



**Diary of Events.**

*December 22nd.*—Derajat Column re-occupied without opposition same picquet which had been attacked on 21st.

*December 23rd.*—Picquet between Khirgi and Jandola attacked by gang 50 strong who were driven off.

*December 26th.*—Picquet West of Dardoni unsuccessfully attacked by gang 20 strong.

*December 28th.*—Jirga at Jandola representative of all Mahsuds, except Abdullai sub-section of Bahlolzai and Mich Khel, signed an agreement accepting our terms in full.

*December 29th.*—Mahsud agreement handed to General Climo in open Jirga.

*December 29th.*—Derajat Column advanced to Kotkai meeting with dispirited and feeble opposition from 500 irconcilables under Fazal Din.

*December 30th.*—Motor Convoy attacked between Manzai and Kaur bridge.

*December 31st.*—Railway line East of Kohat damaged by raiders. Engine of mail train derailed and driver killed.

*January 2nd, 1920.*—Troops covering building parties near Kotkai pressed and sniped by enemy all day. Operations culminated in attack by 500-600 Mahsuds when withdrawal began. 4-39 Garhwal Rifles bore brunt of fighting and greatly distinguished themselves. Our total casualties 117. Enemy lost 77 killed or mortally wounded.

*January 4th.*—Kharak raided by Wazir gang 200 strong. Six raiders killed by constabulary.

*January 5th.*—A half-hearted attack on Derajat Column covering Troops beaten off.

*January 7th.*—Reconnaissance from Kotkai up Takki Zam encountered considerable opposition and withdrawal was strongly followed up by enemy estimated 3000-3500 strong.

*January 9th.*—Derajat Column advanced to Ghulam Kach. Withdrawal of 43rd Brigade vigorously pressed. Mahsuds lost 35 killed and many wounded.

## **Diary of Events.**

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*January 10th*—Picqueting operations met with strong opposition culminating in attacks which prevented completion of picquets, cooperation of aeroplanes most effective. Enemy lost 30-35 killed.

*January 11th*—Ahnai Tangi occupied with slight opposition by Derajat Column.

*January 13th*—Column Headquarters and striking force moved to Ahnai camp without opposition.

*January 13th*—Raiders attacked camel convoy near Zara post in Zhob and carried off 90 camels. Troops pursued and captured 16 raiders and wounded others.

*January 14th*—The establishment of a permanent picquet North of Ahnai Tangi led to very heavy fighting, which resulted in a severe defeat of the enemy whose strength was estimated at 4000, being half Mahsuds and half Wazirs. The fighting on this day was most stubborn and included many instances of hand to hand engagements. Our casualties amounted to 344. The losses of the enemy in killed alone are estimated at 250 Mahsuds and 70 Wana Wazirs. Two of our aeroplanes crashed, but Pilots and observers got back safely.

*January 15th*—Aeroplane crashed in Shuza Tangi. Pilot and observer brought in safely next day by Bhitannis.

*January 16th*—Picqueting troops of Derajat Column were attacked by 200 enemy, who were driven off. 15 enemy dead were counted, exclusive of those killed by guns and aeroplanes. Our casualties 5 only.

*January 17th*—Enemy surprised by planes in nullah and during their flight came under fire of infantry and guns. Many dead and wounded seen lying about by airmen.

*January 18th*—Column advanced to Sora Rogha. Considerable sniping enroute.

*January 19th*—Nai Kach village completely destroyed as reprisal for mutilating body of British officer.

*January 23rd*—Establishment of picquet on right bank of Barari Tangi met with considerable opposition. Picquet was however successfully established.

**Diary of Events.**

*January 25th*—Picquet established on left bank of Barari Tangi. Attack made by 200 Mahsuds on covering troops resulted in a picquet being temporarily driven out of a sangar, but situation was quickly restored.

*January 28th*—Derajat Column advanced to Ahmadwam'  $\frac{1}{4}$  mile S. E. of Bangiwala. Considerable opposition from snipers. Air force claimed good targets and enemy's losses are estimated at 20 killed 16 wounded.

*January 29th*—One of Shah Daula's guns fired at one of our picquets.

*January 30th*—Marghaband tower destroyed.

*February 1st*—Column moved to camp 1-3 miles above Ahmadwam. Enemy although in large numbers confined himself to sniping out. Throughout day R. A. F. had excellent targets, consisting of concentrations of up to 600, in ravines round our troops. Enemy reported to have lost 20 killed 50 wounded.

Bangiwala completely destroyed with exception of Subedar Makhmad Azam's house.

*February 5th*—Column advanced to Janjal without opposition.

*February 6th*—Janjal being unsuitable as a camp the Column advanced to Piazza Ragha which was found to be an excellent site.

*February 11th*—Villages and tower near Janjal demolished. Attack on picquet by 30 enemy driven off with loss.

*February 15th*—Marobi occupied. Opposition slight and withdrawal of covering troops not followed up.

*February 16th*—Column advanced  $2\frac{1}{2}$  miles beyond Marobi to junction of Taoda China and Dara Algal. Opposition confined to snipers.

*February 17th*—Considerable opposition from snipers, 16 enemy rounded up in a hamlet and destroyed.

*February 19th*—Hamlets in vicinity of Makin demolished. Considerable casualties from snipers. Mahsud casualties heavy.

*February 20th*—Demolition of hamlets near Makin continued, considerable casualties from snipers.

**February 22nd**—Marobi completely destroyed with exception of Mosque; no opposition. Towers in Makin Gorge destroyed. Slight opposition.

**February 23rd to 29th**—Demolitions continued in Makin area. Considerable opposition from snipers.

**February 24 th**—Maugal Zadran lashkar about 2000 strong from Khost, invaded Kurram and attacked Malli Khel encampment West of Alizai. They were engaged by the Malli Khel and Militia and lost 160 in killed alone. Militia alone killed 80 during pursuit.

**February 27th**—Badama picquet in Kurram attacked by gang of 500 tribesmen. Attack successfully repulsed by Militia assisted by local villagers. Enemy lost 11 killed.

**March 1st**—Derajat Column withdrew from Makin area to Dwa 'Toi En route to Kaniguram. Withdrawal took enemy by surprise and was consequently not vigorously pressed.

**March 3rd**—Derajat Column advanced from Dwa 'Toi three miles towards Kaniguram. Oppositions confined to niping.

**March 6th**—Column arrived Kaniguram and met with no opposition until Kaniguram was reached. Some opposition was however encountered when establishing picquet beyond that place.

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## **PRECIS AND TRANSLATION.**

BY CAPT. J. E. P. MELLOR.

### **1st Battle of the Marne**

(*Revue Militaire Suisse*)

When it comes to considering the greatest Battle of all times each detail has its special interest. Who was responsible for the order to retreat? It has been stated that it was General von Klück, but this is improbable, besides it is said, despatches which exculpate him will be published one day—German Military circles say that the retreat from the Marne was the work of a pessimist, General Moltke. The book on which I am commenting throws some light on this subject. This is what General Baumgarten says. On the afternoon of the 9th, when General von Klück could still hope to defeat the army of Maunoury, an officer from General Headquarters, Lt. Colonel Hentsch, appeared at the 2nd, Army Headquarters at Mareuil, bringing an order to retreat. He produced the following reasons:—

“The situation is unfavourable, the 5th Army is held up before Verdun, the 6th and 7th before Nancy-Epinal, the 2nd Army has been practically destroyed. The 7th Corps, the right wing of this army, has not merely retired, but has been thrown back. Retreat is inevitable. The first Army will retire in the direction of Soissons—Fere en Tardenois, and eventually in the direction of Laon—La Fere. Lt. Colonel Hentsch pointed out the lines to be reached on the map. He added, that a new army was being formed near St. Quentin, and that they would then be able to renew the offensive. General von Klück's chief of staff (the First Army commander does not seem to have been present at this meeting) raised the following objections. “The 1st Army is committed to the attack; retreat will be disastrous as the units are mixed up, and are very tired.” But the messenger from G. H. Q. held to his point of view, only making one concession, that the direction of the retreat could be in a straight line as far as Soissons; the left wing to withdraw behind the Aisne. He added that the decision to retreat was irrevocable, and that he had orders to enforce its execution, no

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matter what objections were raised, adding that he had full authority. The above is what the war diary of the 1st Army says. That of the 2nd throws no light of any importance on the subject. Lt. Colonel Hentsch is dead, but he doubtless must have left documents which will elucidate this important historical point. Meanwhile one has every justification for believing that G. H. Q. was responsible for the order to retreat, which would be only normal as they alone could come to such a decision. It proves that General von Klück was opposed to this order. To what extent did General Bülow influence the High Command? It is impossible to say, but it must not be forgotten, that of all the Generals, he exercised the most influence, (he had been nominated as C. G. S.) and that his army was in a critical situation. His army was the only one being severely attacked, and one is given the impression that he had placed before the Supreme Command an accomplished fact, for at the time Colonel Hentsch brought his orders, Bülow was already in retreat, not only with his beaten right wing, but also with his victorious left wing. Thus everything leads one to believe that the Commander of the 2nd Army belongs to the category of pessimists, whom the German army and people have reproached so forcibly. It must be recognised that he had the best reasons for his alarm. Here a new question arises. Were the pessimists so very wrong? Was the situation less black than it seemed to them? Could the Germans on the 9th of September have had any hope of victory? One would be presumptuous to settle this question in categorical fashion. Besides the complicated strategical situation, there are still so many unknown factors (little was wanted to swing the balance one way or the other) that one must be careful of one's statements. General Baumgarten is of opinion that the High Command had no justification for giving the order to retreat; he also reproaches it for not having directed the battle with a strong hand, and for being influenced by the advice of a single army commander, (i. e., Von Bülow). One can understand Von Klück's confidence of fending off Maunoury's Army by means of the pressure

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of the 3rd and 9th Corps. The 6th French Army had exhausted its effort and had no more reinforcements. But could Von Klück have accomplished this in time to prevent the advance of the English and the left wing of the 5th Army near the Marne (an advance which was already very threatening on the 9th) from causing a disaster in his rear on the 10th? It is not likely that this will be admitted. On the 9th also the right of General Bulow was in full retreat; his left wing it is true had succeeded in throwing back General Foch's right, but had not succeeded in breaking it, and this partial success was about to be annulled by the movement of the 10th French Corps along the crest of the Champagne valley, which would thus threaten the rear of all the German Troops in the plain. At the marches of St. Gond, as at the Ourcq, the Germans were unable to gain anything from their tactical victory, owing to its being delayed. For several days the frontal attacks of the 4th and 5th German armies had made no progress; while since the 8th the break in the line at Revigny had lost its menace, owing to the 10th Corps arriving in time, and to the 21st having reinforced the left of Langle de Cary, thus permitting him to make an enveloping movement.

In very truth if the High Command lacked boldness, most certainly they had reason to be pessimistic.

It is difficult to see how they could have put matters straight. The initiative was lost the moment Von Kluck was obliged, or thought he was obliged, to weaken the sector round Mont Dauphin in order to strengthen that of the Ourcq.

Von Bülow's Army thus became too exposed to hold its positions; this was the turning point of the battle.

Would the result have been different, if Von Kluck had only withdrawn one Corps, leaving the 3rd and 9th? These two would probably have been sufficient to bring the battle of the Ourcq to a successful conclusion, but it is doubtful if it would have prevented the retreat of Bülow. Could the Germans by making other dispositions have won the battle of the Marne? The French victory was won by so small a margin that the answer seems of necessity to be in the affirmative.

General Baumgarten is naturally of this opinion. His reasons are, firstly, because the lack of a single commander for the 1st and 5th Armies prevented the operations on the most important front from being conducted in a connected manner. Secondly, because the Supreme Command committed the great mistake of sending to the Russian Front reinforcements intended for the armies about to strike the decisive blow in the west. Instead of weakening the Guard and the Saxons, two Corps should have been lent to the 6th and 7th Armies. There was all the more reason for this, because, at the critical time, that is to say at that moment when the decisive effort was about to be made, the Army of Invasion had already been weakened by the loss of three Corps, i. e., those left to carry on the siege at Anvers and Maubeuge; yet in spite of this the High Command persist in pursuing their ambitious plan, hastening the advance of the 2nd, 3rd and 4th Armies and continuing to attempt to pierce the line between Toul and Epinal. No attempt is made to prevent Von Kluck from exposing Von Bülow's right flank. Too late they perceive their mistake. On the 6th only do they commence to transfer the 7th Army, less a reserve Corps, to St. Quentin. Lastly, everything points to the 3rd and 4th Cavalry Corps being employed on the extreme right wing of the Germans instead of remaining inactive in the Vosges and Lorraine. It must be recognised that these criticisms are not unreasonable.

The one which bears on the weakening of the right wing at the decisive time appears to me to be particularly just.

But it is by their over-confidence that the High Command failed. In spite of the loss of 3 Corps on their right and two in the centre, they considered that this would not prevent them from completing the destruction of an army defeated in every encounter, and which was continually retreating. General Joffre, on the look out for the slightest mistake, had recognised his opportunity. Without hesitation he transferred troops from the east to his left wing—the only wing he was able to manœuvre—thus strengthening the very sector from which



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Von Kluck was withdrawing troops, and during the battle it was to the east his reserves were directed, always in time, and always to the right place. The disciples of Von Schlieffen had found their master.

While I am discussing the errors which were committed, I should like to give the opinion expressed by General Berthaut in his book, "From the Marne to the North Sea." Had General Von Klück while directing his Army towards the S. E. maintained his 4th Reserve Corps on the line Luzarches—Monthelien; had he diverted towards Dammarten the troops which were holding the region around Compiègne, which troops he was compelled to call upon during the battle of the Ourcq; the German Army would have concealed its real intention, and would have led us to believe that a part of its force was still threatening Paris. It is possible also that we might have been led actively to organise a defensive position between the forests of Montmorency and Vaujours. Even supposing this demonstration had not succeeded in deceiving us, our aeroplanes having already reported the movement of enemy columns towards the S. E., it is evident that the wing of the 6th French Army already on the march would have found it impossible to execute its turning movement towards the right, and at the same time deploy its outer flank against the 4th German Reserve Corps; the centre also would then have run into the defended position of Dammarten, a position which it could not ignore and across the front of which it would be unable to pass with safety; while the right wing would eventually have brought up against the heights to the North of Meuse held by detachments of the enemy; thus the whole situation would have been changed. If our 6th Army had attacked, it could no longer have made progress in the direction of the Ourcq; it would have had to march direct to its front, *i. e.*, towards the north, in order to dislodge the enemy from the line Dammarten—Luzarches before it could think of anything else. As we have already demonstrated, facing south, this line was very strong. Let us suppose that the German covering

troops holding this line had been thrown back; they would then have retreated northwards towards Chantilly, Senlis, Nanteuil el Haudouin and Betz. Our 6th Army could not have ignored them and continued its march towards the Ourcq without risking being outflanked, and having its left wing, which during this manœuvre would have been continually exposed, attacked. This Army therefore had either to halt on the line Dammarten, or pursue in the direction of Senlis and Chantilly, or else retire towards Paris. Anyway it wasted time and could be of no assistance in the Battle of the Marne. All operations on its part became isolated having no liaison with the English Army—Von Kluck's army would no longer have had its flank threatened, and would not have had to recross the Marne and the Ourcq, in order to save itself from imminent danger. Thus the gap would not have been created between Von Kluck and Bülow of which the British Army so happily took advantage. The rapid advance of the army of Franchet D'Esperey right up to the edge of the Champagne Plain, bringing opportune help to the Army of Foch, would not have received the assistance of the British offensive. Would the Battle of the Marne then have been lost? Without doubt, not because "the event" (as Napoleon said) "the event" produced by the combination of Maunoury and French's attack could have taken place elsewhere. We don't know, and any way it is superfluous to conjecture. Of one thing we are certain, that is, that the capital manoeuvre of General Joffre was nobly seconded by General Kluck's carelessness, whose sublime confidence and absolute conviction of the complete demoralisation and imminent defeat of the French Army led him to abandon the recognised measures of security, all the more easy to take, because of the exceptionally favourable ground. Over-confidence was the ruin of the Germans and all their mistakes were due to this. After the battles on the frontier, they were persuaded that the French Army was incapable of recovery. Unable to conceive of the splendid rally of the 5th September, they took no precautions and rushed to their doom. They are unable to understand that the French retreat was to gain ground and power of manoeuvre

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in order to renew the offensive, and they never saw the snare laid for them, in thus leaving to the west of the line of retreat, that Paris, which they would be unable to capture unless they abandoned the plan of destroying the hostile Armies.

It is true the German High Command had moments of lucidity. In its orders of September 5th the 1st and 2nd Armies were ordered to halt facing the front east of Paris. It was too late, however, Von Bulow was in the right position it is true, but in full pursuit, while Von Kluck guarding the right flank of all the German Armies had already reached the "Grand Morin" and his Cavalry were on the road to Provins, when these orders arrived.

The premature intervention of Maunoury took him by surprise, (for in regard to this I do not agree with General Berthaut). Maunoury on the 5th intended only to concentrate his army facing the "Oureq" and not to attack. He, however, revealed to the German General his danger.

Von Kluck saved himself from disaster by promptness of decision and by the splendid behaviour of his troops.

He succeeded in holding up Maunoury sufficiently far from the Oureq to save his communications, but could do no more.

Strange to say nothing was learnt from this.

At the second battle of the Marne the same thing happened; a big pocket was formed on a large front at the cost of heavy losses, and again self confidence led the Germans to believe that the French had exhausted their reserves and were about to crumble away; on July 18th an army suddenly sprang to the attack from the same place where in 1914 the 6th Army appeared.

Hindenburg was in command of the Germans and committed the same faults as his predecessors.

General Baumgarten of course gives various other reasons, for the loss of the 1st battle of the Marne.

He says that the Germans were outnumbered by 3 to 1, which is absurd.

He gives 9 Divisions to the 9th French Army. By adding the 18th Division, which arrived during the battle this number

would be correct, but one must of course then deduct this Division from the 5th Army, which the General fails to do.

At the battle of the Ourcq the General gives Maunoury 10 Divisions; he had 9, plus 1 Brigade, but from September 8th the 55th Reserve Division and the Brigade aforementioned took no part in the battle; while the 8th Division cooperating with the British arrived only on the 9th, too late to take part in the battle. Lastly the 62nd Division greatly weakened by the battles on the Somme, took no part in the battle or pursuit.

The General also exaggerates abominably when he says that the 4th German reserve corps hurled back in confusion a whole army. This corps it is true fought well, but on the 5th was only engaged with Lamaze's group, say 2 Divisions, and Tabor's troops from Morocco.

The 7th Corps (14th and 63rd Divisions) only came into the conflict on the following day, the 6th, while Schwerin's Corps received reinforcements in the shape of the 3rd Division from the 2nd German Corps, at noon, the 4th Division during the afternoon, and the rest of the 4th Regular Corps the following day. Thus only for a short time was the German 4th Reserve Corps at a disadvantage as regards numbers.

The position held by this Corps was very strong, and was supported by heavy batteries. I only mention these facts to show that one must read this interesting work in a critical spirit. Reading it thus one will discover several other very natural mistakes. The author himself evidently does not believe the legend which he, however, puts in his book, namely that the 2nd and 4th first line Corps was engaged with the British before coming to the assistance of its comrades fighting on the Ourcq. It is also inexact to say that Richthofen's Cavalry penetrated as far as Provins and seriously alarmed the left flank of the 5th French Army untrue; too, that Sarraill had two Cavalry Divisions attached to his Army, and that Maunoury attacked on the 6th of September, with 1 Division, on the south of the Marne. General Sordet's cavalry came into action on the 7th and not the 6th, on the extreme right of the 6th

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Army. Of the 4th Corps, the 7th Division alone took part in the battle of the Ourcq coming into action on the 8th; as I have already said, the 8th Division had been lent to General Foch.

General Baumgarten also continually mentions the terrible losses caused by the French artillery, especially in the case of the German 19th Corps, extolling the bravery of the Germans in facing it. Yet the Zouaves at Chambéry, the 246th and 289th Regiments at Barcy, the 56th Division at Etrepilly, the Moroccan troops in the marshes of Saint Gond, the 90th line Regiment at Aulnizeux and the Bretous of the 11th Corps, to mention only a few examples, attacked well in spite of the German heavy artillery and their dash was no whit inferior to that of the Germans, whose bravery none will gainsay. The General also states that the German guns were outtranged by the French, and it was this that caused the failure of the attack of the German 19th Corps; the truth is that besides having a longer range the French guns were better manned.

Besides this, General Baumgarten forgets the great support the Germans received from their heavy artillery at the beginning of the campaign and especially at the Marne. It was this artillery which not only caused enormous losses but checked all the French attacks at the battle of the Ourcq. The heavy batteries of Varedes, de Gué à Treymes, de Vincy, alone were the cause for so many sanguinary repulses; it was these batteries too which held up the British at Ferts-en-Ouarre, and prevented Foch's army from retaking the heights of Congy and Courjeonnet; in the same manner the guns of de Thoult prevented the 42nd Division from passing Villeneuve, while the gunners of Clammages dispersed the attack directed against Coligny, etc., etc. In conclusion no one will ever be found to believe General Baumgarten's statement that the French had the advantage in equipment. To say nothing of the heavy batteries, the Germans were distinctly superior to the French in aeroplanes, machine guns, motors, etc. Concerning the German losses, it is true that many men must have been lost

in their rapid advance, but one must not forget the French losses. The 2nd Corps for example had only half its effectives at the Battle of the Marne. In nearly every Regiment the percentage of loss amongst the officers was enormous. The British alone lost 6000 men between the 23rd and 27th of August.

Such are the reasons given by General Baumgarten for the loss of the Battle of the Marne. "The only battle lost by the Germans in 4 years of War" and he wrote this in June 1919. He of course pretends that it was the people at home who threw up the sponge in 1918, and he curses the politicians who betrayed their country. As long as the General confines himself to endeavouring to excuse the Saxon troops one follows him almost with sympathy, but one loses one's patience when he talks of the war forced on the Germans, and says "The English revealed themselves as utterly incapable of executing even the most simple attack, the High Command of the Allied armies too shewed themselves incapable of gathering the fruits of their unmerited victory on the Marne".

Ye Gods, *unmerited*, this victory, prepared and rendered possible by one of the most brilliant strategical conceptions of all time. A plan so simple, so clear, that it permitted its conceiver not only to choose the time and place for his stand but also to throw in his reserves always at the correct spot and at the most opportune time; reserves which he had cleverly posted at places at first of secondary importance. "Unmerited," this victory gained by soldiers who, though shaken by unfortunate and sometimes foolhardy attacks, had not lost confidence in their commanders, who in spite of 15 days of fatiguing retreats had not become demoralised, and who at the command of their General rallied and renewed the offensive, obeying the order "to die where they stood rather than give up any more ground." Was victory indeed unmerited, by this people surprised by war, who in a few days saw their country invaded, who did not quail at the alarming news of the first few days, knowing their capital in danger, their Government about to flee as in 1871, and who even in the most agonising hour never lost heart, but

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remained calm, and who during the continuous retreats of their army never reproached those who had the difficult task of saving the nation.

From a Military point of view the victory of the Marne was merited because it recompensed the genius of the chiefs and the bravery of the soldiers, from a humane point of view it was just as it always has been and always will be because it prevented a people from becoming enslaved.

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# *Journal*

OF THE

## *United Service Institution of India.*

Published under the Authority of the Council.



SIMLA:

UNITED SERVICE INSTITUTION OF INDIA.

Published Quarterly.

20000

Price Rupees 2.

Printed by S. H. LIDDELL, Longacre, Simla.



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**The Journal**  
OF THE  
**United Service Institution of India.**

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Vol. XLIX.

JULY 1920.

No. 220

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**ARMY VETERINARY SERVICE IN WAR.**

By

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*Director of Veterinary Services in India.*

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I have been asked by reason of my having held the appointment of Director of Veterinary Services of the British Expeditionary Force, France, during the late War if I would contribute a series of articles to the Journal of the United Service Institution India on the subject of Veterinary work in War. I am very pleased to accede to the request for two reasons. Firstly, from an instructional point of view, I feel that, in my present capacity as Director Veterinary Services of the Army in India, it is part of my duty to supply any information which will tend to the advancement and efficiency of the Army in India, and secondly, I desire in every possible way, by precept and by shewing example, to solicit the support of one and all in placing the Army Veterinary Service in India on the same sound basis which it now enjoys at Home, both for Peace and War.

Veterinary Service in India, as it stands at present, is in no way adapted for its success in a War of any big undertaking.

It is a curious mixture of elements seeking the light of day and inviting the welding process into one common interest and organisation.

Prior to the late War, the personnel of the Army Veterinary Service consisted of 63 officers, Army Veterinary Corps, detailed for a tour of five years by the War Office, and 23 Non-Commissioned Officers of the Unattached List borne on the strength

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of what was termed the Indian Subordinate Veterinary Corps. These officers were primarily and essentially for the care and treatment of animals of British units. Treatment was carried out in Station Veterinary Hospitals, the personnel for attendance, dressing, grooming, etc., being detailed from units. In Silladar units and Transport, Veterinary attendance was run on regimental lines, Sowars of Silladar Cavalry being sent to the Punjab Veterinary College, Lahore, to graduate after a three years' course as Salutries or Veterinary Assistants, those for Transport being engaged locally and departmentally from men who were College graduates. Only for periodical inspections and on the occasion of outbreaks or apprehended outbreaks of contagious disease were Officers, A. V. C., called in to Silladar Units and Transport. In a few words, the pre-war system was a (purely scratch) arrangement of borrowing personnel from units for departmental purposes, totally excluding from skilled veterinary care and treatment the great majority of Indian Cavalry, and the whole of the Transport. In war, the whole of the animals comprising a Field Force came under the Army Veterinary Service, and treatment for the most part was centred in Field Veterinary Hospitals specially mobilized. The personnel for these again was obtained under temporary arrangements. It will be seen that a different system was followed in war to what existed in peace, and it will be agreed that such a state of affairs does not commend itself to efficiency, and particularly with a personnel for the most part untrained.

In 1918 an improvement was made. The Government of India sanctioned the transfer of the Veterinary Assistants of Indian Cavalry and Transport to the Veterinary Service and they were incorporated into the Indian Veterinary Corps. The Cadre strength in Officers of the Royal Army Veterinary Corps was increased from 63 to 95 to admit of the more direct supervision and care of animals. The borrowing of the balance of the necessary personnel, however, still continues, carrying in its train an evil principle of counting men effective in two places for two separate purposes, (and absolutely opposed to esprit de corps and truly efficient service.)

I have purposely outlined the above Indian system as I hope to shew by contrast in the course of this article what good organization, tempered in the fire of war, really means, and how easy it is for a service well knit, and with its component parts and individual items of personnel knowing its functions and particular duties so well, to undertake anything that a war of any magnitude can produce, where difficulties are but wafer-cakes, and responsibilities become a pleasure. At the same time I should like to mention that there is now under consideration a scheme for the formation of a self-contained Army Veterinary Corps in India, which if it materializes, will place Veterinary Service in that Country on the top-most rung of the ladder. It would be impossible to find a more promising field or better material wherewith to build an efficient Corps than in India, and it goes without saying that with the experience of the late war fresh in the minds of those in authority, the present moment is most favourable for erecting a sound structure.

To return now more directly to the subject of the article, I propose to divide it into the following headings, and as my experience, or at least the most valuable and up to date part, chiefly relates to the four and a half years' struggle in France and Belgium, I shall have to point my remarks with occurrences in that theatre of war :—

- A—Organization and functions of Army Veterinary Service in War.
- B—Wastage of animals in War.
- C—Army Veterinary Service as an Instructional Agency.
- D—Economy to be effected in the Disposal of animals wasted by War.
- E—The Merits and demerits of the various breeds of animals used in War.

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#### **A. ORGANIZATION AND FUNCTION OF ARMY VETERINARY SERVICE IN WAR.**

Unquestionably all administrative services should be separately constituted in peace with their own fixed establish-

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ments, and their inflation to meet the purposes of war should not be at the expense of fighting units, but should be carried out by their own agency.

The Army Veterinary Service, at Home, or the Army Veterinary Department as it was then called, learned its lesson of organization during the War in South Africa. Previous to that war there was no properly organized field veterinary system. The old water tight method of regimental treatment existed. In war, ineffectives were sent to the second line transport of their units, taken along with such transport until a favourable time presented itself for their clearance to the Base. The wastage of animals during the South African War was not happy reading, and much suffering, disease, and loss would have been avoided if an efficient chain of veterinary assistance in the field had existed. Strange to say, India, by reason of the experience gained in Frontier Campaigns, was ahead of England in Veterinary Service in those days, and maintained, as it does to-day, Field Veterinary Hospitals or Sections as part of its war organisation. Some of these were sent to South Africa, performed very useful service, and though the personnel was but of a scratch nature, have merited their place as pioneers of Veterinary Service in the Field.

The outcome of the South African War was the creation of an Army Veterinary Corps with its own personnel, and with a Record Office and Depot to carry out transfers, postings, training, etc. Regimental Sick lines in the larger garrisons were re-constructed into Veterinary Hospitals and manned by Army Veterinary Corps personnel. The personnel was grouped into Sections, A. V. C., and these formed the nuclei of Veterinary units in the field. Expansion on first mobilization was by means of Cavalry reservists ear-marked as horse-keeper or groom personnel, but subsequently these were obtained by recruitment direct.

The introduction of Mechanical Transport revolutionized the old idea of drafting back ineffective animals to the Second line Transport, and brought about the necessity for the con-

sideration of suitable means for evacuation, and Mobile Veterinary Sections for this purpose were conceived as a veterinary war measure.

Such progress had Army Veterinary Service at Home made in the year before the late war that it was drawn into staff exercises, and even a few months before the outbreak of hostilities a Veterinary Staff exercise, complete with its Administrative Officers, Veterinary Officers in charge of Field units, Mobile Veterinary Sections and Veterinary Hospital arrangements, was successfully carried out at Aldershot on a Scheme arranged by the General Staff.

So that, when the crucial moment of War came, Veterinary Service in the field had more or less a definite policy on which to work, and which may be briefly summarised as follows :—

- Administrative Vety. Officers with G. H. Q. and I. G. C.
- Administrative Vety. Officers with Field Formations.
- Executive Vety. Officers with Units and Remount Depots.
- An Officer I/C Records at the Base (III Echelon)
- Mobile Vety. Sections for evacuation of sick.
- Veterinary Hospitals on L. of C.
- Base Depots of Veterinary Stores.

The Veterinary units of the original British Expeditionary Force which landed in France during August 1914 comprised :—

- 11 Mobile Veterinary Sections.
- 6 Veterinary Hospitals, each for 250 patients.
- 2 Base Depots of Veterinary Stores.

while the entire strength of the A. V. C. personnel numbered :—

- 122 Officers, Administrative and Executive.
- 797 Other Ranks.

The total number of horses of the Force was then 53000.

The subsequent record of Veterinary Service, in common with practically all other Branches of the Force, was one of rapid expansion and change of organization consequent on the growth of the Army and the general evolution of modern warfare. In a little over three years, the above units increased to :—



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- 18 Veterinary Hospitals. } Accommodation for 39800  
 4 Convalescent Horse Depots. } sick animals.  
 17 Veterinary Evacuating Stations.  
 66 Mobile Veterinary Sections.  
 5 Depots of Veterinary Stores.  
 1 Bacteriological Laboratory.  
 7 Horse Carcase Economisers (for Bye Products).

In addition, Overseas and Dominion Governments supplied :—

- 2 Veterinary Hospitals (each for 1250 patients).  
 2 Veterinary Evacuating Stations.  
 11\* Mobile Veterinary Sections.

while the total personnel amounted to :—

	<i>Officers.</i>	<i>Other Ranks.</i>
Imperial Vety. Service ...	651	15000
Oveseas and Dominion Vety. Services ...	114	1446
Total	... 765	16446

The Canadian, Australian and New Zealand Veterinary Services were modelled exactly on the same lines as the Imperial Service, excepting that they could afford to have more officers for executive duty. They were complete in every item of organization even to Veterinary Hospitals on Lines of Communication associated with our own, and there are now in these respective Forces, Officers and Other Ranks who are thoroughly conversant with the procedure of Veterinary Service, both Administrative and Executive. This is a point to be remembered if ever India requires assistance from our Overseas Dominions and Colonies, in fact I am not so sure but that an association so happily constituted should not be continued and be transformed into an assimilation or fusion of Service throughout the Empire. If India is by any mischance shut off from the West, there is an efficient field available on her East.

To deal more closely with the subject of the Chapter under review, it will be convenient to divide it under the following headings :—

- (a).—Administration.
- (b).—Personnel.
- (c).—Regimental Veterinary Assistance.
- (d).—Evacuation of sick and wounded.
- (e).—Veterinary Hospitals and Convalescent Horse Depots.
- (f).—Supply and distribution of vety. equipment and medicines.
- (g).—Bacteriological Laboratories.

[At the outset I desire to pay a tribute of grateful acknowledgment to the constant sympathy and material assistance given by those in authority at General Headquarters, and by General Officers of Commands and Formations, to a Corps which was practically untried in its war organization. Without such help under circumstances which were difficult and at times critical, the individual efforts of the Corps itself would have been of little avail to achieve so high a degree of efficiency as was, without doubt attained during the late war.]

**(a) ADMINISTRATION.**

The Army Veterinary Service, being one of the Administrative Services, has a Director as its Head. He in common with other Directors acts under the Q. M. G. of the Force, who is virtually a Chairman of a Board of Directors.

The duties of the Director of Veterinary Services and the location of the Headquarters of his Directorate are laid down in Field Service Regulations, Part II, Sections 22 and 23.

At first the majority of the Directors of the British Expeditionary Force, France, were under the I. G. C., a Deputy Director of each Service being at G.H.Q. with the Q. M. G. This was subsequently altered to Directors being under Q. M. G. direct. So far as the Veterinary Directorate is concerned, the latter disposition and location is the correct one, as the Director having to administer his service equally at the Front as on L. of C., he can only satisfactorily do it from and through the Headquarters of the Force. Moreover, under a system whereby the Director is back on L. of C. with the I. G. C. and is represented at G. H. Q. by a

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Deputy, the advice of the Director is exposed to over-ruling by or through his Deputy, and thereby conflict may ensue.

With a Director at G. H. Q. the chain of Administrative Veterinary Organization is:—

Deputy Directors with each Army, Cavalry Corps and L. of C.  
(rank of Colonel).

Assistant Directors with each Corps and Cavalry Division  
(rank of Lieut-Colonel).

Deputy Assistant Directors with each Division (rank of Major)

It has been suggested by the After-war-Reorganization Committee that the A. D. V. S. of a Cavalry Division and the D. A. D. V. S. of a Division should be styled "Commander" as their duties to a considerable extent are executive. There would appear to me to be very little advantage in the change of designation. The chief duties of these officers are advisory, inspection, supervision, and general direction of Veterinary Services in their Formation, and they are therefore more concerned in administration than in actual command, though the latter is included in the former.

Whether an Administrative Veterinary Officer-A. D. V. S. or D. A. D. V. S.-will be required at the Base or at Base Ports will depend entirely on local circumstances and requirements. It may also be necessary, as it was in France and will probably be usual in India, to have two Lines of Communication each requiring an Administrative Veterinary Officer of a status in accordance with other Services.

To assist the Director at G. H. Q. an Assistant Director and a Deputy Assistant Director are necessary according to the magnitude of the Force.

For the above administrative appointments, clerical establishments are required. In various theatres of war these were Army Service Corps personnel, and were subject to promotion and re-posting within that Corps. This is unsatisfactory to a special technical Service like R. A. V. C. and the proper course is for that Corps to maintain its own clerks, who are trained to its particular requirements.

**(b). PERSONNEL.**

To deal with personnel, i. e. maintenance of re-inforcements, postings, transfers, and records, a Veterinary Section of the Office of the D. A. G. III Echelon is requisite. A retired Officer, A. V. C., or a Warrant Officer promoted to Commissioned Rank is quite suitable for the appointment of Officer in Charge; A. V. C. Records. There is no need to waste the services of a highly technical Veterinary Officer for this duty.

The posting of officers to Formations and the selection of officers for Administrative and Special appointments must in all cases rest with the Director.

The provision of Officers during the late war presented many difficulties on account of the rapid expansion of the Army and the requirements for so many theatres of operation. Establishments of Veterinary Officers with Divisions, Cavalry Brigades and Veterinary Hospitals were reduced to a bare working number of Officers, but the loss in point of numbers was counterbalanced by the experience and the knowledge of duty of these who remained. Added to this, Veterinary Service had a remarkably efficient second string in its Non-Commissioned Officers both with Field Units and in Veterinary Hospitals and Convalescent Horse Depots on L, of C.

In the early part of this Chapter it was mentioned that on first mobilization of the Field Veterinary Units with the original Expeditionary Force for France, expansion of A. V. C. was made by Cavalry Reservists for horse-keeper or groom duties. General Headquarters, kindly, and I think with great forethought, permitted the Veterinary Service to retain these men. The majority of of them transferred to the Army Veterinary Corps, became Non-Commissioned Officers, and together with our own well-trained and proved original Corps N. C. Os, became the back-bone of the Veterinary Service throughout the war.

To compensate for the reduction of Veterinary Officers in formations, Non-Commissioned Officers of the A. V. C. with the temporary rank of serjeant, were attached to Infantry Brigades, Batteries R. F. A. and R. G. A. Auxiliary Horse Transport Com-

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panies, Reserve Parks, Machine Gun Battalions, Sections of Divisional Ammunition Columns, and the Headquarters of Armies and Corps. These "Sergeants, A. V. C." were carefully selected and trained in the use of Vety. equipment and in first aid treatment. The appointments were much sought after, and were filled by men with a good practical experience of horses. They were much appreciated by Commanding Officers of Units and Veterinary Officers, between whom they constituted an efficient liaison. Their good service rendered was not forgotten by Commanding Officers as was evidenced by the considerable number of rewards which fell to their lot. Before leaving the "Sergeants, A. V. C." I must tell of one, a retired Officer of the Indian Civil Service, who for over two years through danger and foul weather served most gallantly with a Brigade of Guards in this capacity, and whose proud thought to-day is that he served his country as a private soldier.

The majority of A. V. C. personnel employed during the War with the exception of those with Mobile Veterinary Sections, were either over 41 years of age or were of a category unfitted for service in the front line. Recruits or transfers, as a rule, had a working knowledge of horses. Their usefulness, however, was not confined to actual attendance on animals. Records of their Civil occupations were kept, and it was quite easy from their number to find skilled and semi-skilled men for any kind of work required, even to that of stable construction, boot-repairing, carpentering, tailoring and other duties appertaining to the interior economy of units. Under the Man Power Scheme ("Combing out") 4500 men of A. V. C. in France were transferred to fighting units, and were replaced by men of lower category.

No regularly constituted A. V. C. Reinforcement Depot was established in France. Men were sent out in drafts from the A. V. C. Depot, Woolwich, and they were held on charge of the Veterinary Hospital at the base pending posting. This was more suitable than establishing a separate Depot, as the personnel could be used for hospital purposes pending their allotment to various Veterinary Units. If held by a General Base Depot they would be used for any purpose.

**(c) REGIMENTAL VETERINARY ASSISTANCE.**

All animals belonging to units within a Formation must be on the Veterinary charge of an Officer of the Veterinary Service. A definite allotment of Veterinary Officers is made to each Formation in accordance with Establishments, and they are attached to the principal or largest units. Veterinary arrangements for the smaller units are made from this allotment by Administrative Veterinary Officers of the formation concerned. It is most important that every unit should have proper Veterinary supervision and care, as it is only by this means sickness, inefficiency and diseases of a contagious character can be adequately controlled. It was a practice in the B. E. Force, France, that Veterinary Officers, in addition to their daily routine work, should make a weekly inspection of animals in their charge for contagious diseases, i. e., Glanders, Mange and Epizootic Lymphangitis, and should certify on their weekly returns of sick and lame that such had been carried out. The bad case of Mange, the "open" case of Glanders, and the advanced case of Epizootic Lymphangitis is usually to be found in a unit that has not, for some reason or other, been under immediate veterinary care. Freedom from disease is in direct relation to the degree of care bestowed on animals, and the spread of mange or any contagious disease is a certain indication of neglect in management and supervisory care.

It has been suggested by the After War Reorganization Committee that Veterinary Officers of formations should be pooled under their respective administrative Veterinary Officers. Owing to shortage, which casualties and expansion of an army are apt to produce, recourse to pooling may be forced on one, as happened during the late War, but looking at it from the point of view of an initial system of organization, provision must be calculated on definite lines of allotment.

It is, moreover, much more satisfactory to units and to Veterinary Officers for the latter to be attached to certain units of a formation (i. e. the principal units) and that a continuity of service thereby should be maintained. Commanding Officers and

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Veterinary Officers get used to each other, a spirit of bon camaraderie and faithfulness to the unit's interests is engendered, which makes for more efficient service. It often happens that a Director is asked by a Commanding Officer for the return of a Veterinary Officer to his unit after the latter has become a casualty, and a like request often arises from the Veterinary Officer for return to his previous charge.

The following distribution of Veterinary Officers with Field Formations as they are at present constituted is satisfactory, and represents the minimum allotment which can be made without incurring a breakdown in the necessary amount of supervision which all units in a Field Army require—

<b>Division.</b>		<b>Cavalry Division of 3 Cavalry Brigades.</b>	
D. A. D. V. S.	... 1		
3 Infantry Brigades, R. E.	} 1	A. D. V. S.	... 1
Units.		Cav. Div. Troops	... 1
Machine Gun Cos. &c ....		Cav. Regiments at one each	9
3 Brigades of R. F. A. at one each	... 3	3 Mobile Vety. Sections at one each	... 3
D. A. C.	... 1		
Divisional Train	... 1		
O. C. Mob. Vety. Section	1		
<hr/> Total ... 8 <hr/>		<hr/> Total ... 14 <hr/>	

**Corps.**

A. D. V. S.	... 1
Corps Troops	... 1
Corps Heavy Artillery	... 1
O. C. Vety. Evac. Station	... 1 (Allotted as Army Troops.)

**Army.**

D. D. V. S.	... 1
Army Troops	... 1
Army Brigades, R. F. A. at one each	... 1

**Veterinary Officers with Cavalry.**

When Cavalry is operating, single regiments are constantly being detached, or if not detached, a Cavalry Brigade may work on an extended front, and the necessity for a Veterinary Officer to each regiment has been shown time after time.

If Cavalry operates as a Corps, say of two or three Cavalry Divisions, it is necessary to add to Corps Headquarters an Administrative Veterinary Officer and an Executive Veterinary Officer for Corps Troops.

**Sergeants, R. A. V. C., and Farriers of Units**

Veterinary Officers in charge of units require within those units some one to represent the Veterinary Service, to render first aid, to report sickness to them and to carry out their instructions with regard to treatment or evacuation. In the old or Regular Army this representation was effected by the Farrier Sergeants of units (*i. e.* Squadrons, Batteries, Field Companies R. E., A. S. C. Companies, Infantry Transport Sergeants, etc.,) who were sent in peace time to Army Veterinary Schools for instruction, but in units of the new armies where farriers were not only untrained in veterinary matters, but had enough to do in shoeing animals (their first and essential duty) representation was vested in Sergeants, A. V. C., specially attached under War Establishments in consequence of an enforced reduction in Veterinary Officers. The success of these N.-C. Os. has already been alluded to, and it is a war measure which has everything to commend it.

**Veterinary Assistants.**

In India Veterinary representation in units of Indian Cavalry, Mountain Artillery and Transport is by means of Veterinary Assistants of the Indian Veterinary Corps, two Veterinary Assistants being allotted to each Silladar Regiment and each Mule, Bullock and Camel Corps, and one Veterinary Assistant to each Indian Mountain Battery.

**Veterinary Aid Post.**

The bulk of Transport in India is utilised on lines of communication, and a feature of veterinary organization of the



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nature of "Veterinary Aid Posts" has been adopted during recent operations at various staging points en route. Each Veterinary Aid Post consists of a Veterinary Assistant detailed from a transport unit and one or two "Dressers", with a small amount of veterinary equipment.

#### **Veterinary Equipment With Units.**

All units are provided with field veterinary equipment, the scale of which is given in their Mobilization Store Tables. In the B. E. F. France, the scale was cut down to a very low degree. Replenishment was easily effected from Advanced Depots of veterinary stores. Wastage of equipment was curtailed thereby, and to limit wastage still further, certain equipment was allocated to personnel charge instead of unit charge. The ultimate allotment was:—

Officers Wallet	... 4 lbs. ...	in personal charge.
Officers Chest	... 40 lbs. ...	Ditto.
Veterinary Wallet	... 7 lbs. ...	in personal charge of Veterinary N.C.Os.
Unit Chest	... 25 lbs. ...	on charge units and kept by representatives of Vety. Service in units, i. e., Sergeants A. V. C. or farriers of units.

In India the principle is practically the same, but the allotment to units until recently was on too liberal a scale. The supply and distribution of field veterinary equipment will be dealt with more fully later on. It is sufficient to say for the present that the Veterinary Service has given very careful thought to appliances necessary for carrying out successful treatment in the field.

#### **(D) Evacuation of Sick and Wounded.**

For a unit to be efficient in the field, it must get rid of its ineffective animals, and have them replaced by fit animals. A policy of retention of sick animals with units in the field not only impedes the mobility of such units, but it absorbs the attention of a proportion of the unit personnel who might otherwise

be employed in combatant duties. Only minor cases, say those that would be fit again within seven days, should remain on the fighting strength of units, others should be evacuated to Veterinary Hospitals on Lines of Communication where conditions are more favourable for treatment and rest. The adoption of this policy has resulted in unparralelled reduction of wastage over that of previous wars, and the hard lot of animals under war conditions has been greatly mitigated by the measure. When we think of the haphazard method pursued during the War in South Africa where sick and enfeebled animals had to be destroyed because they could not keep up with their unit, were abandoned on the roadside, or dumped at places until they could be collected, our present field method is paradise in contrast.

The Veterinary units specially organised for the clearance of sick and wounded consist of:—

(a) Mobile Veterinary Sections (M. V. S.)

(b) Veterinary evacuating Stations (V. E. S.)

(a) **Mobile Veterinary Sections.**—These small units and their development, supply an interesting page of history in the Great War. They took the field as L. of C. units with an establishment of one Officer and thirteen other ranks, and their allotment was on the basis of one per Division and one per Cavalry Brigade. They were located at Railheads and their movements were directed from Headquarters I. G. C. This might have been quite satisfactory with an advancing Force, but when our Troops were retreating and Railheads changed several times daily, it was found impossible to administer them from L. of C. It was a fortunate chance that in the early months of the war some of them were not captured by the enemy. It was soon realised that the only practical way of utilising them was to incorporate them in formations. This was speedily done, though not without difficulty, and their record subsequently as Field units forming part of Divisional and Cavalry Divisional organisation has been one of unqualified success. The original establishment was based on the assumption that it might be possible to hire or impress local civilian labour for conducting duties, but it was soon found

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that this was impracticable and an altogether unsatisfactory procedure. An increase of A. V. C. Horse keeper personnel to admit of road or rail conducting parties was then made, and the unit became self-contained in all its arrangements including its own transport. For the collection of serious cases a horse drawn ambulance was added as part of the transport and many animals were saved thereby. The English horse ambulance of pre-war days is much too heavy, cumbersome, and with too little road clearance for field work, but a light two-wheeled cattle float as used in France, which can be drawn by one horse, proved very excellent. There yet remains to be devised a suitable horse drawn ambulance as a standard army pattern.

In its function a Mobile Veterinary Section is not only the centre to which all animals from units of a Division or Cavalry Brigade are sent for evacuation, but at times of stationary warfare or during periods of inactivity of the formation to which it belongs, it can undertake a certain amount of treatment of the less serious class of cases

### **Advanced Collecting Posts.**

During offensive operations it was common to throw out Advanced Collecting Posts to act as dressing stations and to receive battle casualties just in rear of the fighting line. These posts consisted of a N. C. O. and three or four men of Mobile Vety Sections, but they did not meet with sufficient success to warrant their adoption as a regular routine measure for the reason that Mobile Vety. Sections cannot afford to split up their small number of personnel, and moreover battle casualties are never so numerous as might be anticipated.

### **Corps Mobile Detachments.**

With the growth of Corps Troops in the B. E. F., France, it became necessary to provide for the evacuation of casualties from units in the vicinity of Corps Headquarters, and furthermore, as Mobile Veterinary Sections of Divisions were so heavily pressed during the operations on the Somme that they could ill afford to send their men down to Vety. Hospitals on L. of C. with casualties (including those of Corps Troops) it was considered necessary to interpose some vety. organization at or

near corps railheads. A certain number of N. C. Os. and men from each Mobile Vety. Section of Divisions comprising the corps, supplemented by 20 to 30 privates from a Vety. Hospital L. of C. as required for conducting duties, were grouped at corps railheads under the Vety. Officer Corps Headquarters and termed "Corps Mobile Detachments." The arrangement was not a success for the reason that the personnel was constantly subjected to change when Divisions were moved from one Corps to another, so that it was finally decided to replace this temporary scratch arrangement by a properly organized unit of the nature of a Casualty Clearing Station. The result was the incorporation in the veterinary organisation of Veterinary Evacuating Stations, so called to avoid confusion with their counterpart in medical organisation.

#### **Veterinary Evacuating Stations.**

These were formed by reducing Mobile Veterinary Sections of divisions by the number of privates originally added to them or conducting duties: also by reducing Veterinary Hospitals on L. of C. The personnel consisted of one officer and 38 other ranks.

They were made Army Troops and allotted to Corps at the rate of one per Corps. A limited amount of transport only was allotted to them as they were located in proximity to corps railhead and movement could be made by rail. They were each provided with a motor horse ambulance, a practically indispensable article of their organisation. These units proved the final and complete link in the chain of evacuation of Veterinary Services in France, and indisputably earned their place in the organisation of a great army in war. Mobile Veterinary Sections of Divisions and Cavalry Brigades delivered their casualties to them, and they in turn transported them to Reception Veterinary Hospitals on Lines of Communication.

#### **Channels of Evacuation**

Evacuation from the Field to Lines of Communication is usually carried out by rail or road. In the former case arrangements are made for trucks on returning empty supply trains,

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between Officers Commanding Mobile Veterinary Sections or Veterinary Evacuating Stations and the Railway Transport Officer at Railhead. Latterly in France, and particularly when the larger clearing units of Veterinary Evacuating Stations were established, special sick horse trains were arranged at the instance of railway transportation authorities, and were found to be highly satisfactory both from the point of view of quicker arrival of the sick animals at the Reception Veterinary Hospitals, L. of C., and from a relief of congested traffic conditions inevitable during an offensive period.

At times evacuation by road was the only means possible, and it may be said to be the normal system of clearance in most theatres of war, at least for those animals able to walk.

To conserve the small number of men of evacuating Veterinary units, the expedient of a long rope was adopted, by means of which twenty horses or mules could be transported by three men. The animals were attached to the rope in pairs, one on each side of the rope, a man guiding the leading pair, another at the end of the rope and the third man in the middle. This system of road transportation was greatly practised by both Veterinary and Remount Services during the war.

The value of horse ambulances, either horse drawn or motor, for evacuation purposes, need not be further enlarged on. They are indispensable factors. The Veterinary Service in the B. E. F., France, had twenty-six motor horse ambulances, kindly presented by the Royal Society for the Prevention of Cruelty to Animals and subscribed for by numerous well-wishers of animals at home and in the colonies at an approximate cost of £30,000. They were designed to carry two animals, and unquestionably they paid for themselves in a very short space of time in the number of animals saved. Their use in war need not be restricted to the conveyance of sick or wounded horses, for there are occasions when it may be necessary to get forward quickly cows for the supply of fresh milk to medical units or even troops in the fighting line. The latter might particularly apply to India. On one occasion in France a party of Royal Army

Veterinary Corps under an officer, and with three motor horse ambulances, cleared a stud of brood mares and foals from a district threatened by the enemy.

Another method of evacuation practised in Flanders was by canal barges. The Veterinary Service there maintained a fleet of five barges drawn by steam tugs. Each barge was fitted up for thirty-two animals, and a very limited number of personnel was required. Starting say at 10 A. M. from the Evacuating Station they would arrive about 4 P. m. at the Reception Veterinary Hospital, and the journey was performed under the most comfortable and easy circumstances. Unfortunately the enemy destroyed locks on their retreat, and barge work became limited in operation. Barges were also used for transport of sick animals between Havre and Rouen, and from these places to Paris for disposal, railway transportation thereby being relieved.

In transporting sick and enfeebled animals, particularly by train, which during hot seasons of the year is very exhausting, the greatest care must be exercised in watering and feeding en route. A Non-Commissioned Officer accompanies each train or road party, and one private per truck (latterly reduced to one per two trucks) is detailed. Rations for men and forage for animals to cover the journey are drawn through the supply officer at railhead. Even though there may be recognised halting places for watering en-route by rail, the varying circumstances of transit during war make their use uncertain, so that watering arrangements must be self-contained and water carried in the trucks or with the animals in some manner. In France many water carriers were improvised, i. e., empty biscuit tins, petrol tins, etc., but the most satisfactory receptacles were the cartridge cases of large-calibre shells. By arrangement with the Ordnance Service they were transported to the Base by Veterinary Service and made use of as water receptacles for sick animals en route. Very excellent rubber containers in canvas cases and of approximately ten gallons capacity were also introduced by Ordnance Service and were held in charge of Veterinary Evacuating Units and Hospitals. In Standing Camp for animals which

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could not walk to a watering place, petrol tins on a pack saddle, or a willesden canvas tank, capacity 110 gallons, accurately fitting a limbered General Service Wagon and removeable when the wagon was required for usual purposes, was adopted by Mobile Veterinary Sections.

In the matter of equipment and medicines, Evacuating Units are complete according to their mobilization scale.

All animals evacuated must be accompanied by an Evacuation Roll giving a serial number, a short description, the units to which they belonged, and the reason for which evacuated. The object of this is not only to keep a check on the animals and thus avoid loss or theft, but as all are tested with mallein for glanders on arrival at the Reception Veterinary Hospital, any reactors may be referred to the unit at the front and immediate action there taken. It is the practice also to attach a special descriptive label (white for medical cases, green for surgical and red for mange or other communicable disease) to the head collar, the label being rolled up under the tongue of the buckle.

The designation of the Mobile Vety. Section or Vety. Evacuating Station and the serial number of the case is stencilled on the quarters of the animals so that identification becomes very easy. The stencils can be easily made from wire in common use.

In conclusion of this Chapter, it is instructive to note that between the 18th August 1914 and 23rd January 1919, over half a million of sick and wounded animals were collected and passed through Mobile Veterinary Sections and Vety. Evacuating Stations in the B. E. F., France, a fact which is sufficient justification for their inclusion in the establishment of an army in the field. Between 2500 and 3500 animals per week were admitted to hospital, the record number, so far as my memory serves me, being 4512. And the organisation was so simple that evacuation proceeded automatically.

(e) **Veterinary Hospitals and Convalescent Horse Depots.**

(a) **Veterinary Hospitals.**

Veterinary Hospitals are Lines of Communication units.

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Their location is guided by convenience of Railway, Supply Transport and Remount Services.

Usually, one is placed at the base or bases where main Remount Depots are situated, as a considerable amount of sickness is usual in remounts newly arrived, particularly from overseas. Others are suitably placed at the Advanced Base or at centres conveniently accessible from particular sectors of the fighting line. They are the main feature of the Veterinary Service, and are specially designed, organised, and equipped for skilled treatment and the comfort of the patient in every way. Veterinary Service has just reason to be proud of its hospitals during the Great War in its various theatres, and of its achievements in treatment both medical and surgical. As may be imagined the experience gained in surgery has been of incalculable value to the veterinary profession as a whole. It is quite impossible to describe adequately the efficiency to which these units attained during the war. Results, and particularly in surgical treatment, were astounding.

An idea of the magnitude of work done in Veterinary Hospitals and Convalescent Horse Depots in France will be gathered from the following summary covering the period from 18th August 1914 to 23rd January 1919:—

Admissions.				Disposals.			
Admitted	...	...	7,25,216	Cured	...	...	5,29,064
				Died	...	...	18,975
				Destroyed (including animals destroyed and sold for food)		...	1,27,741
				Sold to agriculturalists			29,524
				Remaining under treat- ment	...	..	19,912
Total	...		7,25,216	Total	...		7,25,216



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In stating these figures it is at the same time necessary to mention the following facts in connection with them. The principle of the Veterinary Service was to get down from the front as many animals as it was possible to save; in other words to give every animal a chance. Many were hopeless from the start and others from an economic point of view were not worth treatment. But they commanded a commercial value either for purposes of food, or for by-products in the case of those deemed by Vety. Officers to be unsuitable for food.

The number of destructions may seem high, but this will be explained by the above, and it will be shewn in a subsequent chapter that the total receipts for disposal as food in Army areas and in Veterinary Hospitals up to 31st March 1919 amounted to the large sum of £ 13,28,000, while the profit accruing from by-products was £ 56,000. It will be realised also that with over four years of war, the working efficiency of animals individually became much impaired, and that a Category B in animals resulted in like manner to men.

The percentage of cures in veterinary hospitals up to the second year of the war amounted to 84 per cent; it then came down to 82%, 80%, 78%, and gradually lower. The care of animals improved as the War progressed, but the constant strain of service weakened resistance and re-cuperative powers of individual animals. Again, without specific mention or experience the difficulties of a large army landing in a foreign country, and without cover for animals, either healthy or sick, can hardly be appreciated. During the first winter in France, a truly dreadful one in point of rainy weather, excepting a certain number of brick sheds, there was no available covered accommodation for sick animals nor for newly landed remounts, the remount heavy draughts suffering heavily from catarrhal and respiratory sickness of an infectious nature. Conditions and circumstances during the very early days of the war in France were exceedingly hard on animals. Inefficiency during the first winter, and about the time of the first battle of Ypres stood at 15·8%. In later periods, through in winter it rose to 12%, it was brought

down during the good weather of summer to as low as 7·4% at times. I propose, however, to deal with inefficiency and disease under the Section which will be devoted to "Wastage of animals in War".

The Veterinary Hospital provision for the original Expeditionary Force comprised six Veterinary Sections each consisting of 2 Officers, 5 Staff Sergeants and Sergeants, 6 Corporals, 10 Dressers, 4 Artificers, 83 Horse keepers (Cavalry Reservists) and 4 Batmen, the establishment of each Section being for the treatment of 250 patients. These could be utilised singly as Hospitals or grouped together, as circumstances necessitated. The total provision was therefore for 1250 sick animals, which for a Force of 53,000 animals represented approximately 2½%, a totally inadequate provision (Note.—Hospital provision in peace is 6%). Personnel had to be detailed from reinforcements of combatant branches, and the evil of borrowing which exists in India at the present day, shewed itself in the early days of the war in France.

Re-organization of Veterinary Services then became the order of the day. Veterinary Hospitals on the basis of 1000 sick animals were formed, complete with personnel on a self-contained basis. With the growth of the force these were at first increased to 1250 and subsequently to 2,000 patients each. From an economic point of view in conserving officer and man power, the larger hospitals are commendable. It is cheaper to add on to an existing institution and establishment than to create new units, Military Works Services are simplified and conveniences of railways, supply, and transport are the better met. It was found that our Officers, Non-Commissioned Officers and men could handle a unit of 2,000 sick animals just as easily as a smaller unit, provided the interior economy and working followed definite lines of decentralization of duties, which in all hospitals was adopted to an efficient end.

The original unit of 250 patients has consistently been preserved by Veterinary Service in its hospital organisation and marks a sub-division of a large hospital, each sub-division in

## ***Army Veterinary Service.***

that this was impracticable and an altogether unsatisfactory procedure. An increase of A. V. C. Horse keeper personnel to admit of road or rail conducting parties was then made, and the unit became self-contained in all its arrangements including its own transport. For the collection of serious cases a horse drawn ambulance was added as part of the transport and many animals were saved thereby. The English horse ambulance of pre-war days is much too heavy, cumbersome, and with too little road clearance for field work, but a light two-wheeled cattle float as used in France, which can be drawn by one horse, proved very excellent. There yet remains to be devised a suitable horse drawn ambulance as a standard army pattern.

In its function a Mobile Veterinary Section is not only the centre to which all animals from units of a Division or Cavalry Brigade are sent for evacuation, but at times of stationary warfare or during periods of inactivity of the formation to which it belongs, it can undertake a certain amount of treatment of the less serious class of cases

### **Advanced Collecting Posts.**

During offensive operations it was common to throw out Advanced Collecting Posts to act as dressing stations and to receive battle casualties just in rear of the fighting line. These posts consisted of a N. C. O. and three or four men of Mobile Vety Sections, but they did not meet with sufficient success to warrant their adoption as a regular routine measure for the reason that Mobile Vety. Sections cannot afford to split up their small number of personnel, and moreover battle casualties are never so numerous as might be anticipated.

### **Corps Mobile Detachments.**

With the growth of Corps Troops in the B. E. F., France, it became necessary to provide for the evacuation of casualties from units in the vicinity of Corps Headquarters, and furthermore, as Mobile Veterinary Sections of Divisions were so heavily pressed during the operations on the Somme that they could ill afford to send their men down to Vety. Hospitals on L. of C. with casualties (including those of Corps Troops) it was considered necessary to interpose some vety. organization at or

near corps railheads. A certain number of N. C. Os. and men from each Mobile Vety. Section of Divisions comprising the corps, supplemented by 20 to 30 privates from a Vety. Hospital L. of C. as required for conducting duties, were grouped at corps railheads under the Vety. Officer Corps Headquarters and termed "Corps Mobile Detachments." The arrangement was not a success for the reason that the personnel was constantly subjected to change when Divisions were moved from one Corps to another, so that it was finally decided to replace this temporary scratch arrangement by a properly organized unit of the nature of a Casualty Clearing Station. The result was the incorporation in the veterinary organisation of Veterinary Evacuating Stations, so called to avoid confusion with their counterpart in medical organisation.

#### **Veterinary Evacuating Stations.**

These were formed by reducing Mobile Veterinary Sections of divisions by the number of privates originally added to them or conducting duties: also by reducing Veterinary Hospitals on L. of C. The personnel consisted of one officer and 38 other ranks.

They were made Army Troops and allotted to Corps at the rate of one per Corps. A limited amount of transport only was allotted to them as they were located in proximity to corps railhead and movement could be made by rail. They were each provided with a motor horse ambulance, a practically indispensable article of their organisation. These units proved the final and complete link in the chain of evacuation of Veterinary Services in France, and indisputably earned their place in the organisation of a great army in war. Mobile Veterinary Sections of Divisions and Cavalry Brigades delivered their casualties to them, and they in turn transported them to Reception Veterinary Hospitals on Lines of Communication.

#### **Channels of Evacuation**

Evacuation from the Field to Lines of Communication is usually carried out by rail or road. In the former case arrangements are made for trucks on returning empty supply trains,

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personnel being a small complete unit in itself, capable of being detached if necessary, singly or in groups, to meet varying circumstances of forward movement etc. The following table will make this clear:—

No ..... **Veterinary Hospital (2,000 Patients.)**

Details.			Sub-divisions.									
			H.Q.	A	B	C	D	E	F	G	H	Total.
Officer Commanding	...	...	1	—	—	—	—	—	—	—	—	1
Officers	...	...	1	1	1	1	1	1	1	1	1	9
Adj. & Q. Mr.	...	...	1	—	—	—	—	—	—	—	—	1
Warrant Officer	...	...	1	—	—	—	—	—	—	—	—	1
Staff Sergeants	...	...	1	1	1	1	1	1	1	1	1	9
Sergeants	...	...	1	2	2	2	2	2	2	2	2	17
Lance Sergeants	...	...	2	1	1	1	1	1	1	1	1	10
Corporals	...	...	1	4	4	4	4	4	4	4	4	33
Lance Corporals (including Dressers)	...	...	2	3	3	3	3	3	3	3	3	26
Privates (Dressers)	...	...	5	8	8	8	8	8	8	8	8	69
Privates (Grooms etc.)	...	...	14	52	52	52	52	52	52	52	52	430
Far. Q. M. Sergeant	...	...	1	—	—	—	—	—	—	—	—	1
Far. Staff Sergeants & Sergeants	...	...	—	1	—	1	—	1	—	1	—	4
S. S. Corporals	...	...	—	—	1	—	1	—	1	—	1	4
Shoeing Smiths	...	...	—	3	3	3	3	3	3	3	3	24
Saddler Corporal	...	...	1	—	—	—	—	—	—	—	—	1
Saddlers	...	...	4	—	—	—	—	—	—	—	—	4

Provision of personnel and accommodation for Veterinary Hospitals and Convalescent Horse Depots on L. of C. in the B. E. F., France, was on the basis of 10 per cent sick of the Force. 7 per cent of this was Veterinary Hospital and 3 % Convalescent Horse Depot. 2 % was the normal amount of minor sickness maintained at the Front. In November 1915 the L. of C. provision was cut down to 8 %, but so heavy were the casualties and so great the congestion and overcrowding that a return to the 10 % basis was forced upon us. At one time as many as 45,000 sick animals had to be cared for on L. of C. and it will readily be realised that the provision of accommodation for this number placed no light tax both on the Military Works and Veterinary Services. Accommodation for 39,600 sick and convalescent animals was actually provided, and this amount would never have been reached if Veterinary Service had not accepted the principle of rendering assistance in personnel to the Military Works Service in the construction of their installations. The man-power situation absolutely necessitated it, and there was the constantly burning desire to get the sick under cover during inclement weather which seemed ever to prevail. It is necessary in this article to dilate somewhat on stable construction, as the success of treatment greatly depended on hygienic surroundings and suitable facilities for work, and there are one or two items that I would specially like to mention.

#### *Lay-out Plan.*

This was in blocks of 250 standings on the sub-divisional basis above mentioned, the lines of stabling being double, with a partition between. The lines were thirty six feet apart, with an alley way of nine feet behind the animals, the rest of the space being laid away to grass. Two stalls could be converted into one loose box or enclosure if desired, and at the end of each line was an expense forage store. Roads between blocks were a first consideration, and it was necessary to limit the movement of animals and transport, otherwise a quagmire was the result. Each block had its own dressing sheds, forge, water

troughs, etc., so that they were separate entities in view of any outbreak of contagious disease. Mangers were of continuous iron sheeting and could be easily disinfected. Many of the hay racks were made from hay band wire, in fact this article was made use of for very numerous purposes.

*Material of buildings.*

Some stables were of wood, and were erected under contract. Others were of iron of standard pattern obtained from England and could easily be screwed together and erected by our own men. They could be pulled down and erected elsewhere if a forward move was necessary.

*Horse Tents.*

In the very early days of the war, when there was little in the way of covered accommodation, I chanced to find a circus owner stranded at Gournay-en-Bray, and obtained permission to purchase his tents, including a large round performance tent, four horse tents, which would accommodate forty horses each and an elephant tent. A chalk pit at the Advanced Base comfortably held the large round tent. Its numerous poles were shortened by three feet, its top was lowered, and it remained in glorious function in its abode, affording accommodation for 160 horses, for nearly two years until Anno Domini tolled the knell of its demise. The horse tents proved invaluable and were the origin of a complete tented hospital and several tented sub-divisions of other hospitals. One hundred and two horse tents, each holding fifty horses in a double row, were maintained by Veterinary Service in France. They were easily erected, were stable in bad weather if made to proper design, and animals did well in them. They should form part of the mobilization equipment of Veterinary Hospitals, and with ordinary care will last two years.

*Stable floors.*

I was often asked the question whether I would have "pucca" standings or over-head cover. Any one who had experience of the mud of France and Flanders would have found no difficulty in replying, and would have plumped for pucca

standings every time. Solid standings and hygienic surroundings are indispensable factors in institutions for the treatment of sick and wounded, and particularly where contagious ailments are concerned. Stable floors exercised the attention of hospital commanders in France more than any other item of hospital management. The material used comprised bricks on edge, beech planking, stones, cobbles, cement, and wooden blocks. Perhaps the best of all was pine or beech trees sawn across in four-and-a-half-inch blocks, and set in tessellated form in chalk and cinders or sand. Such a floor lasts indefinitely and is not slippery.

*Water troughs.*

A great feature of Vety. Hospitals and Depots was water troughs. The earlier ones were wooden with zinc lining, or canvas on wooden frame, but the latest and cheapest were of reinforced concrete and were made by the hospital personnel on the spot. Each line of stables had its own water trough with water laid on, so that if any untoward outbreak of contagious disease occurred, its spread was limited.

It is very difficult in the short space of an article to chronicle all that appertains to a Veterinary Hospital, but before passing on to its legitimate function, there are a few things worthy of note:—

The category of the personnel has been previously alluded to. They were most comfortably huddled and it would be impossible to have found any body of men even in peace more blessed with comfort in their well-ordered barrack rooms, their messes and dining halls. Their pleasures were not forgotten, and there were Y. M. C. A. and Church Army Huts and Force Canteens for their off times. Gardening was the order of the day when work was done, and to such a degree was this encouraged that the majority of Veterinary Hospitals were self-supporting in vegetables for the whole year.

The good order and the well kept premises reflected on the well-being and smartness of the men, and made for the more successful working. Even the animals appreciated their cleanly and



it may be said beautiful surroundings. For them it was intended to grow green crops and roots all the year round, and sanction had been given for 100 acres of land per hospital for the purpose, but the end of the war came before it could be carried into effect.

Amongst other economies may be mentioned the extraction of gas (carburetted hydrogen) from horse manure at one or two hospitals, and the utilization of it for cooking horse food. It is a simple process, but requires a pit more or less for proper production.

Straw bedding was not possible. It was much better to put such a valuable article into the animals bellies than under their feet. Each Vety. Hospital and Convalescent Horse Depot was equipped with power chaff-cutting and corn-crushing machinery and there was nothing wasted.

#### **VETERINARY HOSPITALS IN THEIR FUNCTIONAL ROLE.**

It is quite impossible and it would be outside the scope of this article to describe in detail the methods pursued in treatment and the technicalities attached thereto. It will be realised that innumerable ailments in varying degrees were encountered during the four and a half years of hostilities: the more serious of them, constituting grave wastage, will be dealt with in the chapter under the heading of "Wastage of animals in War". It will, however, be instructive to outline the grouping of hospitals for practical work and to follow the course of animals through them.

With operations of such magnitude and with the total large number of casualties to be handled, it was found, both from an administrative and practical working point of view, that Hospitals were best located in groups of two or three together, each group (excepting essentially base hospitals) functioning for particular sectors of the front line. Each group consisted of:—

A Reception Hospital.

A Mange Hospital.

A General Hospital.

On arrival at the Reception Hospital patients were subjected to the mallein test, were inspected, sorted and despatched, with a minimum loss of time, to one of the adjacent hospitals according to the nature of their maladies. If any cases were considered

hopeless or economically not worth treatment, they were put aside for inspection of the Deputy Director of Veterinary Services L. of C., and his orders taken as to their disposal for purposes of food or otherwise.

Those animals requiring immediate surgical treatment were subjected to operation at the Reception Hospital, and it was no uncommon sight to see three animals in the operating theatre under chloroform at the same time. At some Reception Hospitals unloading arrangements were so complete that they were provided with their special railway sidings. Reception Hospitals also undertook treatment of medical and surgical cases in the same manner as a General Hospital, in addition to reception work.

Mange cases were transferred to Mange Hospitals as soon as possible, where special treatment was applied, dipping baths being part of their equipment.

Cases of debility which required only rest and feeding up were despatched direct to Convalescent Horse Depots, one or more of which was reasonably convenient to the various groups.

At the Reception Hospitals each animal was given a hospital card on which was stated the date of its admittance, a brief description, the unit to which it belonged, and its ailment. The card accompanied the animal wherever it was transferred, treatment was entered on it and it was filed on discharge. Some check was necessary on the length of time animals remained under treatment, as obviously it was financially unsound to maintain them in Hospital indefinitely. The above mentioned cards were therefore carefully scrutinized, and moreover a "Form at a Glance" shewing numbers under treatment by weeks was kept up.

Very few animals were permitted to reside in hospital beyond three months. In addition to those palpably worthless which were speedily disposed of, any animals resident six weeks and over were shewn to the D. D. V. S., L. of C. for consideration of further retention or for casting. They were again seen by him periodically. Castings were fairly free as chronically unsound cases were of no use for front line work if

### ***Army Veterinary Service.***

patched up. Certain horses, particularly of a good draught type, considered fit for work on Lines of Communication were branded on the foot with the letters V. B. signifying "Veterinary Base". There were a good many of this category towards the end of the war, and it was possible to re-classify some of them for service at the front. The transport of Veterinary Hospitals was either of this category or of patients worked for a short time to get them fit before discharge to Remount Depots. Unfortunately, as I will allude to later on, so many fine valuable horses suffered from disease of the eyes resulting in blindness, but they were equal to useful work on L. of C. Whether it was a case of "What the eye doesn't see, the heart never grieves" over or whether it was parallel to the feeding of ducks in a dark cellar, the majority of blind horses became fat and maintained wonderful condition. A pair of blind draught horses belonging to a Veterinary Hospital took first prize at a Horse Show for the best horses of the Show.

On an average 3000 horses were discharged cured to the Remount Services weekly, and a special point was made of the good order in which they were turned out. Stable management is just as important in a Hospital as the actual treatment of ailments, and I have no hesitation in saying that Veterinary Hospitals excelled in their stable and line management. It is little good being authorities on the subject if the example is not shown. And it was no easy task during the wet and muddy times of winter to clean and groom the majority of animals, foul of skin and caked with mud as they arrived from the front.

The disposal of those animals wasted by war, their death at times from absolute exhaustion, their destruction whether for food or otherwise represents the saddest side to the Service whose rightful mission is to cure not to kill, but we are cheered by the fact that never in the history of war were sick, wounded, and enfeebled animals, tended with more care and sympathetic consideration in hardships, which are inseparable from war. It is right for me here also to mention the kind thought of persons far off from the scene of battle, who

contributed so liberally with their money to lessen the hard lot of the creatures engaged in war. Through the agency of the Royal Society for the Prevention of Cruelty to Animals, which was duly accredited as a Voluntary Aid Society by the War Office, the enormous sum of £ 100,000 was subscribed and devoted to the provision of complete Veterinary Hospitals, Horse Ambulances (both horse drawn and motor), and many other appliances for the benefit of disabled animals in France.

**(b). Convalescent Horse Depots.**

In veterinary organization these institutions are not altogether for animals convalescing after a period of residence in a hospital. They are essentially for animals run down and poor in condition, and requiring an extended rest. Medical and surgical cases requiring special treatment are not admitted. The nature of the treatment in Convalescent Horse Depots is therefore feeding and building up, and it is to the careful and scientific side of dieting that attention has to be paid.

The working plant must include chaff-cutting and grain crushing machinery and apparatus for boiling food. The articles of diet must be varied in kind and amount, and include those known to produce the best results.

Rest is necessary for the worn out and debilitated, and therefore in the construction of Convalescent Horse Depots provision should be made both for stables during inclement weather or when animals are brought up for grooming, and for paddocks where they can roam at liberty. Furthermore, as so much of the debility, exhaustion and poverty in animals in war is from lack of drinking water in the areas of operations, Convalescent Horse Depots must be bountifully supplied with good water for animals to take their fill as they desire.

The objective study of animal exhaustion and debility is real business for the Veterinarian. Curious phases present themselves. Prostration for days, flickers of life, faintings, palpitations, fits and other nervous symptoms are all to be observed, then sudden return of vitality and rapid improvement. One can realise the value of a grass field or an enclosure with soft sand or earth to lie on, under such circumstances.

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The operations on the Marne and the Aisne in the early days of the War produced a large number of debilitated animals, and as soon as the Military situation permitted, approximately 3,000 horses were turned out to grass towards the end of September at Gournay-Eu-Bray between Dieppe and Paris in the rich pasture lands there, the allotment being three horses to the hectare ( $2\frac{1}{2}$  acres). In a fortnight they were different creatures. Convalescent Horse Depots were thus conceived, and Gournay became from that time until the end of the war our principal Convalescent Horse Depot. It functioned chiefly for Hospitals on Southern Lines of Communication and the Armies based thereon. 1,180 hectares (2915 acres) of land were leased annually at the average price of 23 francs per hectare monthly, and animals were run out from the beginning of May to the middle or end of November. The Depot was organised for 4000 animals in summer and 1200 in winter. It consisted of a Headquarters and several Centres, each being provided with stabling to which horses could be brought up from the various pastures for grooming, shoeing, etc. prior to discharge to Remount Depots. Three Veterinary Hospitals were in the neighbourhood, to any of which animals requiring hospital treatment were sent. The personnel for attendance was very small comparatively with hospitals. Grazing had to be supplemented by a ration of grain and hay in accordance with the season, but there were enough pastures to allow of their being rested for a while and the grass to grow after being eaten down. The free life at pasture during summer was excellent for the animals on the whole. It has, however, certain drawbacks. With large mobs of horses and much dung (animals at grass always produce a large amount of dung) flies are troublesome. Animals huddle together to get away from these pests, they do not feed during the heat of the day, preferring to congregate under trees. Hard ground of summer is bad for the lame, and as a rule heavy draught horses never do very well at grass. Mules are much more concerned with what is going on in various other pastures, and the kraal system is the best for them.

We attempted to keep horses on pasture at Gournay during the winter in the same manner as was practised at Lathrop in the U.S.A. with Remounts during the Boer War, but in spite of the well sheltered fields, the experiment was a hopeless failure and had to be abandoned. The winter of 1914-15 was extremely wet, and the mire was too severe for debilitated horses. Moreover it was difficult to get the necessary food into the sodden undrained pastures. Impoverished animals cannot stand inclement weather: the only practical way of managing them, during winter at least, is to bring them into cover.

On the whole therefore, the most satisfactory form of Convalescent Horse Depot is an arrangement of corrals or enclosures, and as there was no grass land available on the Northern L. of C. in France, it was on this plain that the Convalescent Horse Depots in that area were constructed. They were organized on a basis of 1200 animals. One was laid out in the form of "pawubrokers balls", each block or ball being surrounded by an exercising track, and divided into enclosures 50 yards by 40 yards with an alley way down the centre for a Decauville railway for carrying forage, removal of dung, etc. The enclosures were for 50 horses or mules each, and each was provided with a water trough. Stabling with pucca floors were erected on two sides of the enclosures. Another Depot was rectangular, with enclosures 100 yards by 50 yards, each for 100 horses, and with the same provision of covered standings, water-troughs, decauville railway, etc. Both were built on sand, the dunes on the French coast line being excellent for the purpose.

The personnel and transport for a Convalescent Horse Depot for 1200 animals consisted of :—

*Establishment.*

Officers, R.A.V.C.	...	2	(O.C. being of the rank of Major.)
Quartermaster	..	1	
Staff Sergeant	...	1	
Sergeants	...	4	
Corporals	...	6	

**Army Veterinary Service.**

Lance Corporals	...	...	10
Farrier Sergeant	...	...	1
Shoeingsmith Corporals	...	...	2
Shoeingsmiths	...	...	8
Privates	...	...	163
<i>Transport.</i>			
Tip-carts	...	...	5
Water-cart	...	...	1
Horse Ambulance	...	...	1
G. S. Wagons	...	...	2
Motor Lorry	...	...	1

In the general working of these depots 400 animals were under grooming, exercise and preparation for discharge to Remount Service, the remainder being at liberty in the corrals. Endeavour was made to turn out 200 per week, but discharge rarely reached that number and depended greatly on the state of the animals on admission. The personnel was detailed in accordance with this distribution, the grooming staff being approximately at the rate of 1 man to 5 animals, and the corral attendants at 1 to 12 animals.

On admission hind shoes (some times fore-shoes also) were removed, and animals were placed in the corrals by classes, viz Heavy Draught, Light Draught, riders, and mules. Riders and Draught horses do not get on well together at liberty. At feeding times the lighter vivacious riding horses clear the heavier and more lethargic animals away from the feeding-troughs. Then again, grouping in all classes has to be made according to individual cases whether they are delicate feeders or otherwise, and whether they are in poor or medium condition. Inspection of teeth is necessary, indeed this resolved itself into a routine procedure in Veterinary Hospitals and Convalescent Horse Depots as abnormalities of teeth were found to be so very frequent and requiring remedy. One Veterinary Hospital in France even had a dental room.

Ordinarily Convalescent Horse Depots are the rendezvous of the flotsam and jetsam of war, and castings of the chronically inefficient, and the old and worn out, are very frequent. A general weeding out has to be made. It is an interesting fact that 11 % of animals evacuated from the front for various ailments were fifteen years and over during the last two years of the war, and it was important in view of disposal to keep a record of this situation.

It was also very necessary to keep a close watch over animals at liberty, whether in pasture or in corrals, on account of contagious disease, especially glanders and mange, owing to the greater liability of outbreaks of this class of disease in debilitated animals, and the danger of insidious spread when so much individual attention is not admissible. In the dirty coats during winter, lice and mange parasites find a fine shelter.

Sand is apt to get foul with constant use of corrals and it was necessary to rest the corrals, clean them out, and replenish with fresh sand from the dunes. Droppings were gathered up in osier baskets, and it was a noticeable feature of both Veterinary Hospitals and Convalescent Horse Depots that no dung was to be seen anywhere in the lines. A certain amount of sand colic was encountered, chiefly amongst new hungry arrivals and in those animals with capricious or depraved appetites common to ill-conditioned animals, but this was counteracted by a plentiful ration and water, an admixture of salt in their food and feeding systematically and regularly out of mangers and hay racks. A certain number of leather muzzles were also in use. The advantages of a comfortable bed of sand for the weak and worn-out far out-weighed the disadvantages of occasional cases of sand colic. It was a wonderful sight on a sunny day to see scores of them lying prone on the sand resting like dogs, and one of the first acts on being let loose from stables in the early morning was to roll in the sand, particularly the mules.

As previously remarked, feeding was the essence of treatment. Debility or poor conditioned animals must have chaffed



### **Army Veterinary Service.**

food and a good deal of it. The greater part of their hay and straw ration was chaffed, and Depots were provided with machinery that would chaff about 2 tons per hour. Grain was also crushed. Bran and linseed cake were indispensable factors. The sugary locust beans were also appreciated.

A noticeable fact which rather upsets ones ideas of the stereotyped army routine order of watering before feeding, is that horses at liberty after partaking of food from their manger will troop off to the water trough and have a drink. It is nature's way. And the stableman therefore who places water either in a bucket or otherwise beside his horse in the stall is following a correct principle.

Fresh arrivals required no exercise beyond the quietness of walking about their enclosures, but later on, exercise was a part of the daily routine of treatment. Exercising tracks formed part of the installations, and animals were led and driven round in batches with a minimum of attendants. By this means they improved much more quickly. They also were worked in the Depot Transport for the same reason.

The system of identification and treatment cards was exactly the same as in hospitals, and inspections for castings by the D.D.V.S. similarly carried out.

During the war a large number were passed through Convalescent Horse Depots. Castings were naturally heavier than in hospitals, but they proved themselves valuable and successful parts of vety. organisation, supplying a much felt need for a class of case that tended to congest Vety. Hospitals, and moreover they were run at a less cost per animal than the latter units.

#### **(f) Supply and Distribution of Veterinary Equipment and Medicines**

The Director of Veterinary Services with a Field Force is responsible for the provision of all Veterinary Stores.

The organisation controlled by him for the supply and distribution of the same, consists of :—

- (a) A Base Depot or Depots of Vety. Stores.
- (b) An Advanced Depot or Depots of Vety. Stores  
according to the size and distribution of the Force.

Ordinarily, the allotment which is most suitable is one Base Depot per L. of C. and one Advanced Depot per Army.

Each has a recognised War Establishment.

### **Base Depots of Veterinary Stores.**

A Base Depot or Depots of Vety. Stores, is held ready in peace time, and despatched with an Expeditionary Force. They are located at the Base as the name indicates. The amount of stores they maintain is calculated to last three months. They function for all Vety. Hospitals and units on L. of C. and feed the Advanced Depots.

Replenishment is made either by indent on the Army Vety. Stores, Woolwich, or by local purchase, whichever is cheaper. In India, Medical Store Depots take the place of Army Vety. Stores and all replenishments are made through them.

Proper ledger accounts are kept and are scrutinized by the Director of Vety. Services and Financial Adviser as may be deemed necessary.

The establishment consists of one officer and six other ranks. The Officer may be a well proved warrant officer, R.A.V.C., promoted to temporary commissioned rank, the services of a Veterinary Officer thereby being saved.

### **Advanced Depots of Veterinary Stores.**

These small units of one sergeant and three other ranks are formed in the field, and their function is to supply field units. Though their allotment may be at the rate of one per Army, the actual number required and their distribution depends on circumstances of railway arrangements.

Experience has shown that they are best located at Regulating Stations and the forward despatch of stores to units at the front carried out through the Military Forwarding Officers at these places. In France, until this was done there was constant trouble and stores were frequently lost. Only three Advanced Depots of Vety. Stores were formed in the British Expeditionary Force. One was subsequently withdrawn to a Base Depot and converted into a repair unit, the Base Depot functioning for both L. of C. and the Armies fed from that Base.

## **Army Veterinary Service.**

### **Supply and distribution of Veterinary Equipment, with Field units.**

This has already been alluded to and little more remains to be said. All units mobilized with certain articles of Field Veterinary Equipment as laid down in Mobilization Store Tables. In course of time this was found to exceed requirements and it was cut down. Moreover Vety. Wallets and Officers' Chests were made a personal charge instead of a unit charge. The saving was very considerable. The policy now followed is a minimum of equipment with field units including veterinary units, and the institution of Advanced Depots convenient for replenishment of field equipment and necessaries as required. When animals are freely evacuated and there is little regimental treatment, there is no necessity for a large amount of Veterinary equipment and stores with field units.

In India, the old idea of regimental treatment still exists to a considerable extent. The provision of veterinary equipment is enormous and entails a large amount of transport to carry it. The scale has, however, recently been reduced and the Home system which has stood the test of a large war will be introduced. A very large saving will be effected thereby.

### (g) **Bacteriological Laboratories.**

In all theatres of war the necessity for Veterinary Bacteriological Laboratories was soon apparent, and in course of time these were duly established. Their function relates to microscopical diagnosis, research, and the manufacture, if necessary, of sera and vaccines for treatment.

This item of veterinary organization in the field is yet in its infancy, and with the gradual advancement of Veterinary Science, is susceptible of greater and better development. Matters of chemical as well as bacteriological investigation present themselves in the field to Veterinary Service, and without self-contained means, the assistance of the Medical Branch has to be solicited. Notable instances of this in France were the poisoning of animals through sewage contamination of village ponds, and poisoning by adulterated oil cakes used for food.

To meet the situation combined Bacteriological and Hygiene Laboratories would be suitable for Veterinary Service.

In the B. E. F., France, a Base Bacteriological Laboratory was located at Rouen. It was complete with all modern apparatus presented by the Royal Society for the Prevention of Cruelty to Animals from their subscribed Fund, and performed useful work. The same Society fitted out small laboratories for diagnosis purposes with five Vety. Hospitals on Lines of Communication. A desire also was expressed to attach a small Motor Laboratory to the Headquarters of each Army and without question it was a step in the right direction. It is an item of vety. organisation which should be considered in future mobilization.

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### **NOTICE.**

Major General Sir J. Moore, K.C.M.G., C.B. Director of Veterinary Services in India is contributing another Article to the Journal of the United Service Institution India entitled "The Merits and demerits of the various breeds of animals used in War. He would be very pleased if any subscribers or readers who have had personal experience of any particular achievements of horses collectively or individually either during the late War, or on any previous campaign or campaigns, would send a brief account of the same to him at Simla for inclusion under their names as an Appendix to the Article. It is known that many horses have wonderful war records and it is fitting that their achievements should be recorded in some way. For instance:—"COMET" (1876-1898) a 14 hand C. B. pony, a winner of races; famous in the annals of the Cawnpore Tent Club and once advertised as the best pig-sticker in Asia; a society gentleman at Annandale; four campaigns including Afghan War [1879-80] Chitral [1895] Suakin [1896] and killed at Tirah [1897-98] at age of 21 years "*Red Rufus*"—[K. D. G's.] campaigns in France, Egypt, Palestine, and N. W. F. F. [1919] and winner of Grand Military Steeplechase India [1920].

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## **THE GENESIS OF THE 32ND SIKH PIONEERS.**

BY COLONEL H. R. GOULDING, INDIAN VOLUNTEER FORCES

(RETIRED)

The familiar heading in the Indian Army List shows that this distinguished regiment was raised at Madhopur in 1857 by Lieut. Dyas and was known at the time both as the Punjab Sappers and Punjab Miners, and became the 24th (Pioneer) Regiment of Punjab Infantry in 1858, etc., etc. It may not be generally known, however, that although the first three companies were raised at Madhopur, in accordance with instructions issued by Sir John Lawrence on the 19th June 1857, it was Herbert Edwardes, then Commissioner of Peshawar, who writing on the same day (a remarkable coincidence), first suggested the recruitment of a whole regiment composed entirely of Mazhbi Sikhs. In a letter to the Chief Commissioner of the Punjab (No. 638, dated the 19th June 1857), he wrote as follows:—

“At this time, when the general Mutiny of the Hindostanee sepoys has exposed the error of raising an army from one class of natives, and new regiments of mixed races are being raised in consequence, I venture to draw the attention of the Chief Commissioner to the Class of Muzzubee Sikhs. These men were originally sweepers who became Sikhs by taking the *Pahul* which was open to every one, but the present generation of Muzzubees, are the sons of first converts, and their habits of life are the same as those of any other Sikhs. I fear they have even become proud and would on no account now admit a sweeper to join their ranks.

“Muzzubees were enlisted into the Sikh service under Maharaja Ranjit Singh, and collected together in half or entire companies. They rose to be non-commissioned officers, but seldom or never to be Subedars. They, however, distinguished themselves in the Sikhs' army by their fighting qualities, and had no superiors in bravery. Their very women have been known to help, sword, in hand.

In reorganising the Native army, one step would be the enlistment of Muzzubees; and I would strongly recommend

the measure, as practically equivalent to the introduction of a new race. It would be advisable to begin by raising one entire Muzzubee regiment. They would then have their own commissioned and non-commissioned officers, and I would augur for the regiment, from the honest spirit of pride which would thus be evoked, a career of honourable distinction. In a social and administrative point of view, it would be a wise and civilising measure to open an honourable sphere to these Muzzubees who are now too often found plundering society in revenge for poor livelihood and degradation."

Lieut.-Colonel Edwardes went on to mention certain areas, including Peshawar, from which suitable recruits for the proposed regiment might be expected.

The suggestion to raise an ordinary infantry regiment composed exclusively of Mazhbis did not quite meet with Sir John Lawrence's approval at the time, though it will be shown later on that, as the result of experience gained during the siege of Dehli, he subsequently changed his views. In reply to Herbert Edwardes letter, Sir John said: "I would not advocate the raising of Muzzubee Sikhs myself. If employed, they would be better in a regiment by themselves than with others. I think a body of them as Pioneers might be useful. But I have heard their courage and soldierly qualities denied, while, as soldiers in the Sikh army, many plied the profession of *thags* and *dacoits*, for which the service gave facilities. I am now raising three companies of these men to go to Dehli as Pioneers for which their habits render them well adapted. We shall see how they behave."

The instructions that had already been sent to Lieutenant Dyas, Superintendent of Canals, were to the effect that he should "forthwith call for volunteers from the Mazhbi Sikhs employed on the canal at Madhopur, to the extent of 240 men, to be formed into three companies of 80 each, and to proceed to Dehli at once for employment with the force under General Sir H. Bernard, K.C.B., as Pioneers." The companies were to be "formed and despatched towards Dehli with all practicable despatch," under the command of Lieut. H. W. Gulliver,

R. E., and it was suggested that the volunteers should, if possible, consist of old, trained soldiers, as it is intended to supply them with arms on their reaching Ludhiana."

Each company was to consist of 1 Subedar on 67 Rs. per mensem, 1 Jemadar on Rs. 24-8-0, 1 Havildar on Rs. 14, 1 Naik on Rs. 12, and 80 Privates on Rs 7, Permanent service was not guaranteed.

Lieut. Dyas apparently established a record in recruiting which has, perhaps, never been beaten. On the 20th June, he reported that he hoped to be able to "start them off to-morrow evening (21st June,)" and added that "every exertion would be made to enable them to arrive at Phillour by the morning of the 25th instant."

Writing demi-officially from Amballa on the 3rd July, Lieut. Gulliver reported the arrival of his Pioneers there that morning, after being supplied with arms at Phillour and accoutrements at Ludhiana. He went on to say "I hope to be at Pipli to-morrow Karnal the day after. From there, they say, we must march prepared to fight at any moment.....I have not had a single desertion, and hope to have time to drill my men a bit, as Baird Smith has taken 700 of his canal men down to dig. Mine are not as fine men as they might have been, if we could have taken more time to pick and choose, but will, I think, do very well. About 100 of them are Ranjit's old soldiers."

The file of official correspondence from which these interesting extracts have been taken shows that two more companies, similarly recruited, left Madhopur for Dehli on the 30th July, under the command of Lieut. D. C. Home, R. E. A few days later, Major Laughton, Superintending Engineer, 2nd Circle, reported to the Chief Commissioner, that Captain Cox, Executive Engineer, had offered to raise 400 Mazhbi Sikhs within one week for service at Dehli. This offer was accepted, after reference to General Wilson, commanding the besieging force at Delhi, and by the 6th September this new contingent was ready equipped to march to Dehli. It consisted of two companies of Mazhbis and two of Jats. The



total strength of the Pioneers at Dehli, all under the command of Lieut. Gulliver, was now 1,000 of all ranks. This officer, when asked to report on the results of the experiment, paid a tribute to the staying powers of the first contingent which accompanied him to Dehli, where they arrived after having marched 260 miles in 13 marches. While remarking favourably in regard to the work of these Pioneers as labourers and suggesting that Lieut. Alexander Taylor, of the Engineers, having been Director of works would be best qualified to report on this point, Lieut. Gulliver added "with regard to their fighting qualities, it is hard to speak, as they were used entirely for working. Besides, they were undrilled and could not be used in the field in conjunction with other troops. But I can answer for their passive courage, as far as working under heavy artillery fire. And the officer commanding the party ordered to follow the assaulting column with tools told me that he had the greatest difficulty in preventing their joining in the assault..... On the whole, I consider them excellent material for pioneers." In this opinion, Lieut. Alex. Taylor agreed, and he, too, bore testimony to their steadiness under heavy artillery fire; but he was not prepared to recommend that the Mazhbis be formed into a corps of Sappers and Miners. A thoroughly efficient Sapper must be naturally a highly intelligent as well as, by practice, a highly trained soldier.

Sir John Lawrence had, however, come round to Herbert Edwardes' way of thinking and his order to his Military Secretary, Lt. Col. Macpherson (afterwards General Sir J. D. Macpherson) was to send up to the Govt. of India a statement of the circumstances under which the Mazhbis were raised and to recommend "that they be formed into a regiment of Pioneers, ready to fight or work, as required." In drafting the letter to the Govt. of India, this was expressed as "ready for service as soldiers in the field or for labour on Government public works, as might be required." It was also mentioned that, in a demi-official letter, Lieut. Colonel Neville Chamberlain, Adjutant-General of the Army, had supported Lieut. Gulliver's opinion that the Mazhbis were "well fitted and deserving of being retained in the service."

A copy of the "present State" of the contingent as it stood on the 15th of October 1857 was annexed [see Appendix]. In a paragraph added by Sir John Lawrence to the draft in his own handwriting it was explained that the origin of this class thus arose. When Guru Tegh Bahadar was put to death, at Delhi, his son Guru Gobind, urged his disciples to go down and endeavour to rescue the body which had been exposed near one of the gates. They all refused to undertake so dangerous an enterprise. The duty, however, was accepted and successfully accomplished by some men who returned with the body carefully wrapped up in cloth. Guru Gobind was so pleased with their zeal and devotion that he admitted them into all the rights and privileges of the sect of Sikhs, pronouncing them to be henceforth "Mazhubee," i. e., men who had a religion, "Muzhub."

It was mentioned incidentally that another regiment of Muzhbi Pioneers [the 15th Regiment of Panjab Infantry-now the 1st Battalion, 23rd Sikh Pioneers] was then being raised at Lahore, and was to be composed entirely of young men.

It remains only to add that the Chief Commissioner's proposal was sanctioned by the Govt. of India in a letter dated the 29th January 1858, in which it was stated that "in the opinion of His Lordship in Council, a body of such men will be most valuable to the State"-a prediction that has been right well fulfilled by the gallant Mazhbis in many campaigns. In a Panjab Gazette Order issued by the Chief Commr., giving effect to the sanction received from the Govt. of India, it was notified that "the corps of Mazhbi Sikhs, at present on field service under command of Lieut. H.W. Gulliver of the Engineers, is brought on the strength of the Panjab Irregular Force and will henceforth and till further orders be designated the 24th [Pioneer] Regiment of Panjab Infantry."

**APPENDIX,****Present State of the Regiment of Punjab Pioneers on the 15th of October 1857.***Camp Delhi 15th of October 1857.*

DETAIL.	European Officers.		European N.-C. Officers.		Subadars.		Jemadars.		Havildars.		Naicks.		Sepoys.		Mounshees.		Priests.		Barbers.		Blisities.		Sweepers.		REM ARKS.
Fit for duty	2	1	5	4	15	21	341	1	1	8	12	10													
On duty	1	5	1	2	13	12	105	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
On Command	2	3	4	4	15	14	275	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
In Hospital	1	2	1	1	7	5	101	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Wounded	2	...	...	...	...	...	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Absent without leave	...	...	...	...	1	...	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
TOTAL	8	11	11	11	51	52	843	1	1	10	17	11													

(Sd.) JOHN CHALMERS, ENGR.,  
*Adjutant,*  
*Punjab Pioneers.*

(Sd.) JOHN CHALMERS, ENGR.,  
*Officiating Commandant,*  
*Punjab Pioneers.*

## **SUGGESTIONS.**

### **For improving conditions of service in the Indian Army.**

BY LIEUT. COL. C. R. SCOTT-ELLIOT, COMMANDING 1/61st.

K. G. O. PIONEERS.

1. *Followers.* (speaking of Regimental followers only).  
Bhisties, Cooks and Sweepers.—These are extremely difficult to get owing to the totally inadequate pay they receive. Their pay should be raised, and they should be eligible for Good Conduct Pay and Pensions. They should also be attested and *not only* enrolled.

2. *Rank and File.* The pay is insufficient to attract the best recruits from the labour markets in spite of free rations—the civil labourer can earn anything from twelve annas upwards a day—the sepoys' pay works out to a fraction over  $5\frac{1}{4}$  annas a day; and I presume the cost of his rations may be considered four annas, as that is what he is allowed per diem if he does not draw rations—this brings it up to  $9\frac{1}{4}$  annas a day; the issue of the present bonus of Rs. 24 for every six months service apparently recognises that the present pay is insufficient. I consider the sepoys' pay and that of non-commissioned officers should be raised by Rs. 4 a month and the bonus abolished. The extra payment of Rs. 4 monthly would be much more appreciated than having to wait until it had accumulated for six months.

(b) They should be entitled to free rations or an allowance in lieu for periods they are on leave or furlough; an allowance in lieu would be simpler as it would be difficult to ration them in their villages.

(c) Their families, viz, those on the married establishment, should be entitled to free rations or an allowance in lieu.

(d) The married establishment, as laid down in appendix XVIII A. R. I. vol 2, is 80, or 20 per Company. I consider this should be increased to 122, distributed as follows:—

Each Company (5 Havildars, 5 Naicks and 20 Sepoys)	120
Regimental Havildar Major.	1
„ Quarter Master Havildar.	1
Total	<hr/> 122 <hr/>

### ***Suggestions.***

Indian Ranks appreciate having their families with them. It is recognised that married quarters cannot be provided for all, but if Commanding Officers were allowed to interchange families at the Government expense at periods of six months or so, this would give all ranks a chance of seeing something of their families.

(c) The periods of service for G. C. Pay in the case of sepoy should be altered and sepoy be eligible for one badge after every three years service up to a maximum of fifteen years—at present a sepoy is restricted to three, viz: one after three, one after six and one after ten years, service.

3. *Barracks.* These have improved considerably in the last twenty years and are a great improvement on the mud huts that used to exist. Greater improvement, however, is necessary in the way of structure, especially in the roofing and flooring. A recreation room and school, with necessary furniture, should be provided. An Indian Officers "Club" in Indian Lines has been sanctioned. Charpoys or beds should be provided for all Indian Ranks at Government expense. Barracks should also be lighted free by Government at present the sepoy has to pay for lamps and oil.

4. *Regimental Offices.* These should be provided in all lines free of rent and should be large enough for all the Offices, provision to be made for fireplaces and punkahs. What was pleased to style itself a Regimental Office in Ferozepore and for which a charge of Rs. 30 per mensem was made, was hardly large enough to hold two companies, so was utilised as an Indian Officers Reading Room.

5. *Indian Officers.* The present allowance of Rs. 48, which is allowed them on promotion to Commissioned Rank to equip themselves with is totally inadequate, when one considers they have to purchase swords, binoculars and tents in addition to uniform. They should be provided with a complete outfit at public expense. The present clothing allowance of Rs. 48 has to last for six years after which they are granted Rs. 8 per annum, only to maintain their uniform, and equipment.

6. *British Officers.* (a) Provision of sufficient and better quarters in Cantonments.

(b) All Officers travelling on leave to be entitled to Form E, and their families on these occasions to travel first class on payment of second class fare.

(c) Free passages home and out again every five years, provided they undergo instruction for a portion of time whilst at home.

(d) *Leave* out of India to count from date of embarkation on departure, until date of disembarkation on return. At present this is only allowed for leave on Medical Certificate.

(e) *Pay.* Full staff pay to be allowed to the officiating incumbent in a privilege leave vacancy, and also to those officiating in vacancies caused by Officers at classes or absent on duty.

(f) *Passages.* Free passages to the United Kingdom or wherever they wish to settle should be given to Indian Army Officers and their families on retirement. At present this is only allowed to Officers of the Indian service compulsorily retired *otherwise than on account of age* (para 61 (b) A. R. I. vol X.)

(g) *Chargers.* If it is too much to expect chargers to be provided free and fed free, I consider Infantry Officers should be allowed to purchase them from Remount Depots.

### (h) *Pensions*

1. Those for Officers, I understand, are under revision.

2. The Indian Military Service Family Pension Fund. I hope this will be revised and the pensions admissible to widows and children considerably raised.

This fund is a very unsatisfactory one from the bachelor's and widower's point of view as, although both are *compelled* to subscribe to it, the former gets nothing back when he retires, neither does the latter should his wife predecease him. This, I consider, calls for remedy.

3. A statement should also be published periodically showing how this fund stands. I do not recollect ever having seen such a statement.

## ***Suggestions.***

7. *General.* Standing Barrack Committees and Cantonment Committees should be abolished. At present Regimental Officers especially Commanding Officers, devote a considerable portion of their time to sitting on these Committees. It appears to me that questions now dealt with by standing Barrack Committees could equally well be settled by the G. O. C. and his staff including the Garrison Engineer.

As regards Cantonment Committees it appears to me that the G. O. C. could settle all matters dealt with by them in consultation with the Cantonment Magistrate.

### 8. *Pioneer Regiments.*

(a) I consider that the rank and file of Pioneer Regiments should be better paid than the infantry sepoy, as they have to carry more and have to do *all* Infantry Training in addition to their Pioneer Training.

(b) It would also, I think, be well to consider whether some of the Infantry Training at present undergone by Pioneer Regiments could not be modified so as to enable them to devote more time to technical training, e. g., P. T. might well be done away with after a Pioneer Sepoy has completed his recruits course, as his Pioneer Training, if properly conducted and facilities exist, should be sufficient to keep him physically fit. To ensure this, however, Pioneer Regiments should not be sent to stations where few or no facilities exist. I also think the annual course of musketry for Pioneer Regiments should be abridged.

(c) I advocate that a Pioneer Sepoy be styled "Pioneer" and not "Sepoy". I also consider that, as regards the receipt of working pay, Pioneer Regiments should be brought into line with Sappers and Miners, as laid down in para. 944 A (1) viz : that they should receive it for every day they are on field service. This would stimulate recruiting and do away with the necessity of keeping working rosters on field service.

### 9. *Accounts.*

(a) Much, I think, could be done to simplify accounts in the Indian Army, e. g., the reduction of Contingent Bills which

have to be submitted to the D. D. O. If any special allowance is sanctioned by regulations the D. D. O. should credit it automatically to the Regiment without demanding a contingent bill from the Regiment.

(b) *Postage Accounts.* Commanding Officers of Regiments should be allowed to send O. H. M. S. telegrams and official letters without stamps. This would do away with the necessity of keeping a postage account and effect an economy in the manufacture of service labels.

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## **A MEROANTILE AIR FLEET AS A FACTOR IN INDIAN DEFENCE.**

By

CAPTAIN H. V. GEARY, M. C.

2-69TH PUNJABIS.

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We have just emerged from a war in which many of the old and cherished ideas of the conservative Britisher have suffered a severe and rather annoying shock. The supreme shock of all, I think, is the realisation that, through the development of aviation, we are no longer an island, except in a geographical sense. We have remained secure from the horrors of actual invasion by land, but the Zeppelin and his little brothers—the Gotha and the Friederichshafen—have convinced us that Great Britain is no longer the “right little, tight little island” which we cheerfully assumed it to be in the days before men went up to the air in aeroplanes.

It has always been regarded as a cardinal point in British Imperial strategy that the Navy should be supreme. The “Two Power” naval standard was always the ideal aimed at, and although a combination of varied circumstances rendered its attainment difficult before the war, yet the margin was decidedly in our favour compared with the next strongest naval antagonist. The Navy is now no longer sufficient to guard our shores from hostile invasion. The Navy that flies has come to stay, and unless the League of Nations, at present an untried experiment, can put an end to war for ever, we shall find ourselves in due course up against another nation, or combination of nations, which thinks that an opportune moment for having a smack at John Bull has arrived. Who the enemy will be is not a matter for present discussion, but we have just fought a second Waterloo against a nation which wanted the whole earth, and history is bound to repeat itself in the annoying way it does.

We shall have to reckon, therefore, with the necessity of maintaining a strong aerial fleet for Imperial defence. If we are still out to keep up the “top-dog” tradition which has so far

prevented us going the way of Assyria, Carthage, Greece, Rome and other defunct Empires, we shall have to fight for it, and also *pay* for it. There lies the rub—we must have a strong air fleet, and we must also get down to hard, steady work and curtailment of national expenditure in order to wipe off the aftermath of nearly five years at £7,000,000 a day. How are we to reconcile these two policies?

Obviously, if the Government cannot afford the luxury of an air fleet, someone else must pay for it. Before the war we were the Carter Paterson of the world. Not in the firm's horsed vans, but in our own steamers. Those unkempt looking tramps which we, on our journeys to and from India, were wont to scan lazily through our field glasses and dismiss as rather inartistic blots on the seascape, were the means by which we were enabled to achieve the apparent economic impossibility of having a large excess of imports over exports, and yet remaining the richest nation of the world. The exports which never figured in the Board of Trade returns were the vast sums of money which the remaining nations paid us for the privilege of using the holds of these inartistic tramps. On the outbreak of war most of our mail steamers, and many of our cargo boats, were converted into auxiliary cruisers and transports. Here was a large fleet of exceedingly useful vessels, always at the disposal of the Government in time of war, for which the cost to the nation was negligible. Why not aim at being the aerial carriers of the world, and assist our mercantile marine to bring back to our coffers the gold which is so sorely needed to bolster up our falling exchanges and to wipe off our colossal National Debt?

I am not suggesting that this grandiose ambition of seeing eventually the code letter G. predominant on all the world's aerial highways is more, at the moment, than a somewhat Utopian dream. It is not within the scope of this article to do more than hint at what may be possible during the next few years in India. But the spirit which has made us masters of the sea has made us anation of natural pilots. To quote a pamphlet issued to all the scout-pilot training squadrons and aerial fighting schools at home

during the war: "A few Germans can equal us, none are better, most are very much worse". No one will deny that the British Royal Air Force during the war was the most wonderfully efficient weapon of all the novel ones which were invented, nor will they deny that among Allies whose own air forces were of the highest quality, we were an easy first. I see no reason why we should not be "top-dog" in the air as we are at sea. As aero engineers we have succeeded admirably; our aircraft designers have never failed to produce machines which fulfilled, in every case, the almost preposterous demands of those responsible for the development of the war in the air. As to the supply of personnel, our aerodromes in England during the school vacation periods, thronged with eager public-school boys while the air buzzed with the concentrated din of twenty or thirty engines, were an eloquent testimony to the popularity of the newest arm of the service.

Whereas the existence of a large mercantile marine does not mean a supply of ships ready at once to take offensive action against the enemy, a mercantile air fleet means an immediate reserve of war-planes. We have not yet reached the stage of aerial artillery and air super-Dreadnoughts—they will come in time, without doubt—and, so far, the present weapons of offence are machine-guns and bombs. To convert a passenger or mail machine into a bomber would be a mere matter of hours and mountings for machine-guns could form an integral part of the bus as it stood. The adjustment of a few clamps and screws would be all that would be necessary.

The layman, I am afraid, is rather sceptical concerning aviation. Any suggestion that he should trust himself and his correspondence to the air, instead of an Indian railway carriage full of dust, is met by a "No, thank you. Terra firma's good enough for me." I have no wish to annoy him with ancient history, but something of the same kind was probably uttered by his grandmother when railway trains first commenced to run. He is wont, in these pioneer days (and they *are* pioneer days, compared with some years hence) to hold up his hands in

pious horror and to say that the whole thing is impossible—that we have not yet succeeded in really conquering the air, that aerial journeys are exceedingly erratic and cannot be performed to schedule, that engine trouble always seems to cause delays, that we are tempting Providence a bit too far, etc., etc. What about the early days of marine and railway development? People actually existed then who said that ironclads would sink because they were too heavy. Compare the modern liner with the wind-jammers of a hundred years ago, the modern train with Stephenson's "Rocket"—regarded then as an amusing toy.

I am afraid that the sceptics can only argue in vague terms. Counsel for the defence can point to the London-Paris service, the various passenger services arranged during last summer in several parts of England and the Continent, the London-Cologne aerial mail service and, to consider performances nearer our present home, General MacEwen's journey to India in a Handley Page, and Captain Ross-Smith's similar recent journey in a Vickers Bomber. Even Captain Poulet (to whom every pilot takes off his hat for a really plucky effort) in an obsolete Caudron with warp control and two 80 h. p. Le Rhone rotary engines, used during the early days of the war for our most diminutive scouts, succeeded in reaching Rangoon.

Now to consider the question from the standpoint of India as that naturally most nearly concerns us. At present we are engaged in a Frontier war in which aeroplanes are already playing a very conspicuous part in bringing the tribes to reason. During the course of last year we have fought Afghanistan, and internal troubles have occurred which, unfortunately, necessitated in some districts the employment of force. To look forward, Russia, as in the last century, may be an anxious problem, and the political unexpected may land us in trouble further East. It is a sad fact that, if the Government is obliged to bear the cost of an Eastern war, in which our enemies are not armed in the modern fashion, men's lives are cheaper than tanks, aeroplanes and all the paraphernalia of scientific conflict.

### **A Mercantile Air Fleet.**

Aeroplanes would probably settle the show in a much shorter time if they were employed in sufficient numbers, but if they are to belong permanently to the forces of the Indian Government, the cost will be terrific. The financial alternative is a commercial air fleet for which someone else pays.

In this country we have decided advantages over Europe in the matter of climate. Only during three months of the year do clouds and rain impede flying, and then they only *impede* it—they do not render it at all impossible. Running costs and establishment charges will, however, be higher than at home. The pay of the staff, aerial and administrative, of an aerial transport company will be higher to start with, as some compensation must be granted for continued exile in a hot and often unhealthy country. In addition, it is essential that British fitters, riggers and other technical personnel be employed, who also need larger remuneration than at home, for no British pilot, especially one who knows his India, is going to trust himself in the air on a machine which has been looked after by the Indian "mistri". The life of a pilot is dependent absolutely on the care which has or has not been lavished on the overhauling and adjustment of his machine. We can assume, therefore, that establishment charges are likely to be very large.

There lies the crux of the problem. The whole business is a matter of money, in which we cannot afford at the present to be over-generous. If the companies are to run on their own capital, and make their dividends sufficiently large to attract this capital from the public, the charges for mails and passages will be so high that no one will be prepared to pay them. A Government subsidy will be necessary in order to reduce rates to a sufficiently low level to create a demand for aerial passages and aurally carried mails. This subsidy need not be large—I could give figures if I were in possession of facts concerning the present prices of aircraft and aero engines—and in any case it would be infinitesimal compared with the cost to Government of maintaining the whole organisation itself. And the advantages would be great. Large fleets could operate

between all the important commercial cities of the East—Baghdad, Basra, Karachi, Bombay, Rangoon, Calcutta, Singapore and Hong Kong. The staff of these companies would include men skilled in flying, technical administration, aerial navigation, wireless and meteorology, in addition to a number of fitters, riggers and other technical personnel of proved efficiency. It could be made the condition of the grant of a subsidy that the personnel belong to the R. A. F. Reserve, and that all pilots put in a month a year with a service squadron in order to keep in touch with the progress of war flying, aerial gunnery and tactics and other things. The Indian Government would then be in control of an organisation which would be capable of transforming itself from a peace to a war footing and concentrating at the danger point within a week from the commencement of hostilities.

It may be argued that this scheme will provide solely for a reserve of heavy bombers. True—but until our potential enemies develop fleets of machines themselves (and, for the sake of the world's peace, we should be foolish to allow them to build any aircraft at all) we shall need neither two-seater fighters nor fast scouts. Artillery spotting, reconnaissance and contact patrol buses can well be furnished by the Royal Air Force, and there will always be a number of scouts and small two-seaters kept by private owners who are ex-R. A. F. pilots and whose means allow them to indulge a taste which is not easily lost.

Of course, this question has doubtless been thoroughly thrashed out by the powers who are responsible for Indian defence, and we shall see the result of their decisions when the time comes for the first aerial transport company to be floated in this country. My apology for writing on it is the fact that it has received little public notice. The difficulties are great, but not more so than we have had to contend with on land and sea. From the B. E. 2c stage of 1914, when the war commenced, we have advanced to a point where 750 horse power enables a Vickers bomber to take the Atlantic in its stride.

## ***A Mercantile Air Fleet.***

The traversing of long distances with perfect regularity is mainly dependent on engine reliability, and if we have progressed in five years from machines flying at 60 miles an hour for two hours to machines flying at 100 miles an hour for twenty hours, or to scouts which fly at 130 miles an hour, there is hope for an early solution of the "dud" engine problem which, with its forced landing bugbear, not only makes for irregularity to schedule, but also is exceedingly trying to the pilot's nerves. Modern scientific knowledge does not progress in mere arithmetical progression, but in geometrical. We have learned more in all branches of science since the beginning of this century than we achieved during the whole of the nineteenth. Aviation, a baby at the commencement of the war, has grown to what we look upon as maturity in five years. But is this finality? A new fuel, another as yet undiscovered source of energy, may make us regard the present petrol engine as an interesting museum relic.

Meanwhile, we can very well carry on with the knowledge which we already possess. The elimination of engine trouble will, it is certain, be a mere matter of years. Engines do not fail at sea or on land, and although the aero engine must necessarily not be so solid, on account of the extra weight, this problem need not baffle us, if the best engineering brains of the Empire continue to work at its solution as they have been working. Till then, the provision of so many landing grounds on the main air routes that a machine need never be out of gliding distance of one of them—an easy matter in this land of vast, flat plains and cheap land—the use of wireless, directional and otherwise, and a fuller study of meteorology, at present an infant science, will enable services to be maintained with regularity, and their scheduled time can be arranged so that the pilot will always have a reserve of, say, twenty miles an hour in hand with which to make up time if adverse winds and storms delay him.

If Government assistance on the lines I have sketched has been decided on, I think that a subsidised mercantile air fleet

offers the best solution of the problem of reconciling the necessity of paying up our war bills with the other paramount necessity of being prepared for the next war. India's share in the last war was greater than she had ever been asked to make before, and the trend of the world's history is showing that the control of war is gradually passing into the hands of those Powers who are sufficiently industrialised to take it. We are (fortunately or unfortunately) one of those enviable or unenviable Powers, and the map of the world is the battle ground of modern protagonists. India is still, in spite of the lessons of the past few years, coveted by many who sit in various European capitals, and so is the rest of that part of the map which has been painted red by the greatness which has been unwillingly thrust upon us. Sea power played a large part in the issue of the last conflict, and it may well be that air power will be the test of the next. A mercantile air fleet will give those responsible for Indian defence a ready weapon to their hand when the time comes. At present the world's storm centre has shifted from exhausted Europe to somewhere further east, and though the war clouds to the North-West are now no bigger than a man's hand, there is a force behind them, in Russia, which has not decided on the direction of its outlet, and may yet blow them no man knows whither.

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## **SOME OTHER SUGGESTIONS REGARDING THE POST BELLUM INDIAN ARMY.**

In the January number of the U. S. Journal "L. C." briefly touched on certain matters, which are of great interest to the majority of officers and men of the Indian Army.

I trust that "L. C." will pardon me if I examine seriatim the suggestions put forward by him.

Before doing so let me remark that not many Indian Army Officers will agree with him in what he says in the last sentence of his second paragraph. "Generally speaking, this turned out to be a narrow-minded view"—He is talking of our pre-war opinion that only certain classes were fit to stand up to our possible enemies. Most of us I think are confirmed in our pre-war opinions on the subject.

Now for the suggestions.

I am not all in agreement here. It would be interesting to

### **Suggestion No. 1.**

That the length of color service be reduced to 10 years, followed by 6 years Reserve Service, with a pension at the end of 16 years.

hear the views of other Officers. Those with whom I have discussed the subject think with me (1) that the average Sowar and Sepoy is of little value until he has 5 years' service, is at his best from 6 to 12 years' service, and should do 14 or 15 years without becoming worn out. At 15 years' service he is usually only 33 years of age. (2) That the average Reservist is useless. After a year's absence from his Regiment the Indian soldier has forgotten nearly everything he knew. He has become soft and slovenly and is fit only for garrison duty and such like. Let him be used for that—and for internal security, but not for Active Service.

I would alter L. C.'s suggestion to 14 years' Color Service—4 years' Reserve Service, (for duty with Depots, Internal Security etc.), and Pension at 18 years.

By all means give the reservist 6 weeks training annually, for the work intended of him, and let it be at the training Depot. The latter should be permanently situated, not shifted constantly, as has lately been the case.

It must be remembered that with a very short term service Army the annual wastage of men is very great, and the corresponding increase in Recruits of a suitable type would, I think, be a serious matter, judging by the light of recent events.

I have had experience of squadrons and also of companies of

**Suggestion No. 2.** half one class and half another, and do not advocate it, if it can be avoided.

That no Regt. of Cavalry or Battalion should consist of one class only, except perhaps Gurkhas and Garhwalis.

B. O. S. change from one Sqn. and Coy to another so frequently that there is seldom much opportunity for their becoming "specialized in any particular class. It would be of advantage perhaps if they did! As regards a Co. being *thought* to favor one class I don't think anything need be said.

**Suggestion No. 3.** This Is quite sound.

Names of all lance-naiks should be kept on one Regimental list, and promotions from it should be made into the class vacancy, whether it be in the same company or not. Similarly, from Naik to Havildar.

Platoon Commanders Schools have been very beneficial, and

**Suggestion No. 4.** will I trust be permanently reinstituted.

That a school for Indian officers should be established.

But why should candidates never be posted as Jemadars to their original units? This would be resented by both the man concerned and the regiment to which he belonged, and I think the disadvantages would be manifold, even tending to regiments not always sending up their best N. C. Os. for fear of losing them and getting some unknown and perhaps far less capable man.

Concerns the Government of India, and no doubt officers of

**Suggestion No. 5.** the I. C. S. would have something to say about it.

The reward of a grant of land should be made to ex-Army men only and not to Civilians.

**Post Bellum Indian Army.**

This suggestion is one that I feel should be gone into very

**Suggestion No. 6.** carefully.

Abolish Good Service pay for Non-Commissioned Officers and Good Conduct pay for sepoy.

Substitute a not less amount for a series of Rapid fire Practices at varying distances-the scores to be against "Bokey."

It concerns a very vital subject, viz., the present day poor shooting of the Indian Army, and is a post bellum 'Training' problem.

I think the Journal would do well to invite I. A. Officers of experience to give their views and make suggestions both on the question of future musketry training and of extra pay or prizes in connection therewith.

On the "Prevention is better than cure" maxim we must find out the reasons for the bad shooting and eradicate them, and substitute means to ensure a much higher standard of efficiency.

The ultimate object of a soldier's training is to win battles, and apart from questions of organization and equipment, discipline, morale, the determination to win, physical attributes, power of manoeuvre, etc., the real crux of the matter, as far as the infantry soldier is concerned lies in good rifle shooting. The campaign on which we are now engaged has shown us that as far as infantry is concerned we must have (a) the right material, (b) troops highly trained in mountain warfare and (c) capable of shooting accurately and steadily.

Without (a) we get men lacking in courage and grit and therefore unsteady and useless underfire. No general can win battles with such materials. Without (b) the bravest troops will be at a huge disadvantage against the active tribesman. Without (c) decisive success is unobtainable, because the enemy does not suffer and lives to fight another day.

It is only with rifle shooting that I propose to deal. In my opinion the Mahsud shoots far more accurately than our sepoy do. He is very deadly, even at long ranges (900 and 1200) yds.

How is this? and why are our men not equally so? I attribute it to many causes. The Tribesman exercises the greatest *care* to make *every* shot pay. His ammunition is very precious, so he has realized that he must never waste a round. He has deliberately picked out and killed B. Os. at long ranges on many occasions. He usually waits till they are halted. He evidently pays great attention to the range, probably to wind, and certainly to absolute steadiness in aligning the sights. I have myself seen my men being hit to the number of nearly 20 in the space of an hour or so by snipers who could not have been nearer than 500 yds. and were probably further off, concealed in bushy country; but the chief point for wonder was that almost every bullet fired by the enemy hit a man. So accurate was the fire on those who dashed out to succour the wounded that after 3 men had in doing so been hit there were not many takers. A fourth plucky sepoy was luckier than his fellows and got his reward, but had some narrow shaves.

Our sepoys at present do not attain to such heights of rifle shooting, but we must get them to strive towards it. Why are they now so far behind the requisite standard?

The following causes are usually put forward: Hurried training at Depots during the war. Lack of B.Os. to supervise musketry. Lack of efficient instructors. Long intervals (after his recruits' course) during which the sepoy had no rifle shooting practice.

The last cause has probably been the most serious one. Like every thing else rifle shooting needs constant practice. The brilliant "shot" at Home spends days at the shooting schools before August 12th arrives. He takes pocketfulls of pebbles with him in his afternoon walks and throws these at any object that suddenly catches his eye. All this is to train hand and eye. Why is a cricketer usually good at other "quick" games and with a shot gun? Because batting, bowling, fielding and throwing at the wicket train hand and eye to act in unison so splendidly. With games such as billiards, and golf and in rifle shooting I do not think that hand and eye working together are so important, but constant practice is just as important. The Indian soldier should therefore be always kept in practice by *firing bullets* from his

**Post Bellum Indian Army.**

rifle at a mark *throughout the year*. Far better would it be if he were made to do this, (if only a few rounds every week) than the present system of 150 rounds in 3 weeks at his annual coy musketry course and then a long interval until the next course. Snapping and blank cartridge firing are useful if the man tries, but the difficulty lies in ensuing that he does try.

That is why I say that the sepoy must fire *ball* constantly. There is a result to be seen then and he can be made to try, so as to see the result. With more snapping and blank who can tell whether the man tried really to aim and hit? Aim correctors are useful, but are not everything, and the sudden crack of the exploding cartridge makes all the difference.

I am now going to touch on dangerous ground. It is my firm opinion that the following causes have also tended to lower the standard of shooting of latter years.

1. Not sufficient firing without rests.
2.        ,,        ,,       standing.
3.        ,,        ,,       at ranges over 600 yds.
4. Too much stress laid on "Rapid Fire".

Of the first two I will merely say that I think it is good practice to fire quite a lot from the standing position, and from all positions without rests. I advocate lots of grouping practices in this way at short ranges.

Regarding (3). In modern hill warfare the enemy is occasionally seen at short ranges, but much more frequently at long ranges, *e. g.*, 600 to 1200 yds. Apart from this anyone who has done match shooting or has shot big game in the hills knows the value of practice at *long* ranges. It is much more tiring to the eye; it demands much steadier handling of the rifle, steadier trigger pressing, more accurate judging distance and allowance for wind, etc. than when shooting at near objects. It is therefore I think very valuable. A man really good at long ranges will need little practice at short ranges.

Cause No. (4). Perhaps the most real cause of all the present bad shooting. Rapid Fire in the retreat from Mons and in the trench attacks in France was all very well; even there much ammunition was wasted. But to be of value one must predicate a firer who can shoot steadily when under fire himself—otherwise

it merely leads to an encouragement of wildness, funk and waste. The noise and general excitement that it engenders militate against any fire control, and exasperate the Company and Battalion Commander, who is thinking of his ammunition reserves and feeling that equal or better results would be obtained by more restrained and less excitable fire. One hears the answer "Oh, but of course only so many rounds, Rapid should be ordered." The theory is all right, but in action how seldom can either officer or N. C. O apply it.

I don't go so far as to say that Rapid Fire should not be taught to the Indian soldier, but I think it should be subordinated to deliberate fire, and only taught as an emergency fire, and even then only 5 rounds at most.

I have no doubt that many authorities will disagree.

The only other remark I wish to make *re* musketry is the necessity for ground to which men can be taken at any moment to fire at unknown ranges without all the usual "permission" formalities.

I have made no suggestion *re* extra pay to the Sepoy for good shooting. It gave a lot of trouble in the British Army—officers of other units to mark in the butts, etc. Nothing gives officers so much annoyance as being constantly taken away from Regimental work for outside work of this description. As it is the Indian Army officer is eternally on courts of enquiry, court martial, exam. boards, etc., etc.

Extra pay for shooting would tend to cheating on the range moreover, so I feel that the present system of prizes is the wisest course to pursue, combined with judicious extra parades, stoppage of leave, etc., for bad shots.

I would abolish the "Figure of merit" in the annual musketry return. In fact abolish everything that is "eye wash". Give us lots of ammunition, pay less attention to bombing and bayonet fighting and I guarantee that we will soon improve the shooting of our men, though what no one can guarantee is that a regiment good at musketry in a peace station will be good in action when hostile bullets are thick as leaves in Vallombrosa.

War alone decides such questions.

V. B.

## **NOTES ON THE TACTICAL USE OF LEWIS GUNS IN MOUNTAIN WARFARE.**

BY MAJOR J. G. LECKY.

### **1. General Impression of Tactics employed.**

Where they appear to fail.

Examples and reasons for this statement.

Possible reasons for failure.

(a) Danger of stock phrases.

(b) Principles taught instead of how to apply them.

Tactics should be based on the characteristics of each weapon considered together with local factors.

### **2. Brief examination of Characteristics compared with those of the Rifle and Machine Gun.**

Main Characteristics.

(a) Mounting.

(b) Weight.

(c) Cooling arrangements.

Minor Characteristics

(d) Rate of fire.

(e) Suitability for shock action.

(f) Liability to jam.

*Deductions.*

### **3. Application to mountain warfare of points deducted.**

[a] Advance.

[b] Retirement.

[c] With picquets.

[d] On nightwork.

[a] *The Advance.*

Primary use.

Covering fire.

Considerations re range.

General rule for deciding suitable range.

*Secondary Use.*

Pursuit by fire.

Considerations re position.

General rule for deciding the proportion to each category.

[b] *The Retirement*  
*From Picquets.*

Considerations.

A general rule.

*In Rearguard Actions.*

Work in groups. [Offers advantages in control of fire and movement].

Movements. [being independent of platoon, gun conforms to movement of coys].

[c] *On Picquets*

Limitations.....Day time? .....Yes.

Night time? ...Query.

Reasons—when used.

Considerations governing distribution.

Depends on length of resistance required.

If prolonged—then in outer picquets.

If otherwise—then only in pivotal Picquets and supporting picquets.

[d] *Night Work.*

On perimeter? ...Yes.

Trained to fire along wire, or to fire obliquely, *never* direct to front.

Organised to form belts of fire, locking front.

Explanation.....Diagram.

4. Tendencies toward future development.

[a] Follows same lines as artillery and machine gun.

i. e. Towards grouping and combination.

Considerations influencing this tendency.

1. A fire unit pure and simple.
2. Requires technical knowledge, specialist training.
3. Reaches maximum efficiency in combination under specialist control.... c. f.....M. G.
4. Training required in collective action and control.
5. Training requires standardisation.
6. Facilitates ammunition supply.

[b] L. G. O. to be given a more responsible command...



***Tactical use of Lewis Guns.***

Present duties and responsibilities vague and unsatisfactory ... Unit commanders, two attitudes towards L. G. O.

1. Purely advisory.
  2. Used for purposes of training, but not of tactical handling.
- 
5. Two alternative schemes for future organisation.
    - [a] A complete platoon per coy under a platoon commander controlled by Coy Commander.
    - [b] A complete Coy per unit under the L. G. O. [who should be a more senior man than usually met with at present], controlled for manoeuvre purposes by the C. O.

***Advantages.***


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My reason in thinking that these few notes and suggestions may possibly be of general interest, is that in recent operations against the Afghans it appeared to me that certain of the Lewis Gun detachments engaged did not invariably get the best results out of the gun, simply owing to the unsuitable tactics employed. And as I have seen the same tactics used several times since on manoeuvre parades, it seems to me that it may do good and cannot possibly do any harm for company commanders to consider the points raised. The impression I received was that pamphlets, dealing with Lewis Gun tactics, found suitable in France and Flanders, having been received from Home, had been read and accepted as the best possible procedure, without any attempt being made to reason out whether they were equally applicable to the different conditions of fighting on the Indian Frontier.

For example :—

Covering fire for the advance and retirement is a recognised necessity in all modern warfare :—In France it has been supplied in the main by artillery ; among the hills of the Indian Frontier

it would be unreasonable to expect this from the comparatively few guns that usually accompany such expeditions; and what is even more important still, if you did expect it you would almost certainly be disappointed. Consequently, such artillery covering fire as is available has to be helped out by M. G., Lewis, and rifle fire; for which fortunately the character of the country is peculiarly suitable.

Now while the Lewis gun is in movement it cannot be fitting, consequently while in movement accompanying its platoon in its forward advance, (as has been the custom for it to do in France), it cannot be providing covering fire for this advance. Moreover, on coming to close quarters it has no power at all for shock tactics, its fire is no more effective at close quarters than it would be at any distance further away from which it could get good observation of fire, i. e., can be sure of hitting the target. In fact, it is no more, if not actually less, use in a position well forward with its platoon than if it had remained a reasonable distance in rear, leaving out of all consideration its loss of fire effect while in movement.

"The Lewis gun is a platoon weapon."

"In the attack it goes forward with its platoon on one or other of its flanks."

These are the answers given in one form or another, and these are the tactics which appear to be pretty generally pursued. The fact is, the phrase that the L. G. is a platoon weapon has been used so frequently just lately that it has now assumed the dignity of an accepted answer to the question:— What have you done with your Lewis guns?

Much the same as in pre-war days there was a period when, for all examination and manoeuvre purposes, the accepted method of getting rid of tiresome cavalry attached to one's column, of whose possible uses few junior officers then had any very clear conception, was to call them Independent Cavalry, shoot them off into the blue, and expect them to do something vague somewhere, anywhere in fact so long as it was well away on their own.

***Tactical use of Lewis Guns.***

These stock phrases are always rather a danger to guard against. This one for instance, that the "Lewis gun is a platoon weapon" presents to an ignorant and mentally inert company commander a most excellent excuse for shifting the responsibility of training and handling a weapon, which he doesn't quite understand and in consequence doesn't really want to be bothered with, on to the shoulders of the platoon commander, simply by saying that it is a platoon weapon, and that he doesn't wish to interfere with his platoon commander's arrangements. The effect of this is that the platoon commander, who in many, if not most cases knows little or nothing about the gun either, and who certainly has no special ideas on its training and tactical handling, turns to the N. C. O. in charge of the gun team and expects him to "carry on"; with the natural result that the gun is not used to the best advantage. In fact it would almost appear as if the instruction given at these Lewis gun classes is either not grasped by the students or is in itself too vague.— Too much confined to teaching principles and too little concentrated on how to apply them, which latter after all is the only thing that is going to be of much practical service in the cases of young officers and N. C. Os.

I suggest that in hill warfare especially there are many occasions on which a far better result may be obtained by treating the gun as a company weapon, if not even a battalion weapon, massing guns for covering fire controlled under one head, with all the advantages that this offers. So much so in fact that I suggest the gun should normally be regarded as a company weapon and not as a platoon weapon at all, being handled by the company commander himself for covering effect. (Gun teams being trained so that they are always prepared to accompany a platoon in its advance if detailed for that purpose). By so doing the company commander will not only be able to get better results out of the gun, but will himself be in a better position to influence the fighting of his unit up to the last possible moment.

It really amounts to nothing more than the story of the evolution of the M. G., with the difference that whereas the M.G. has become the Brigade Commander's weapon for purposes of tactical handling, the Lewis gun becomes the company or battalion commander's weapon in the same way. The question of command naturally solves itself, being determined by the normal position of the gun in the fire fight.

The tactical use of every weapon is based on its special characteristics, and is determined by considerations designed to emphasise advantages, and to minimise disadvantages that it may possess over other weapons with which it is likely to be used in co-operation.

Consequently it will be natural to start with a brief examination of the main characteristics of the gun in comparison with those of the rifle and M. G. so as to get these advantages and disadvantages clearly in mind.

#### CHARACTERISTICS.

The Lewis gun differs from the rifle and M. G. in three main characteristics:—

- (a) Mounting.—(affecting stability while firing).
- [b] Weight.—[affecting mobility].
- [c] Method of cooling.—[affecting reliability for continuous firing].

#### A. Mounting.

##### 1. *The Rifle.*

Having no mounting at all, is consequently unsteady, its steadiness being entirely dependent on the holding of the firer.

The result being:—Degree of accuracy by day, uncertain, [varying with each firer].

Degree of accuracy by night. Nil.

##### 2. *The Lewis Gun.*

Has a light bipod mounting weighing 2½ lbs, which serves to steady the gun, and so obtains a greater degree of accuracy than would be obtainable with an equivalent number of rifles. This in the hands of a well trained

### ***Tactical use of Lewis Guns.***

gun team enables overhead fire to be used with safety, where with rifles it would be dangerous to fire.

Possesses in itself no means of maintaining elevation and direction, consequently the gun is of very little use, as far as accuracy is concerned, by night.

#### **3. *The Machine Gun.***

Is mounted on a heavy tripod weighing 48 lbs, providing a steady platform which gives reliable accuracy, enabling overhead fire to be maintained until the very last moment before assault; longer in fact than would be possible with the Lewis Gun.

The Tripod, being fitted with means of maintaining elevation and direction, enables accurate fire to be confidently used by night, as well as indirect fire if required by day.

#### **B. *Weight.***

1. Rifle. Weight about 8 lbs.
2. Lewis Gun. Weight about 26 lbs. plus weight of bipod. say another 3 lbs. (The extra weight in gun is wholly due to the more complicated mechanism necessary to produce automatic action).
3. Machine Gun. Weight about 36 lbs. plus the weight of tripod, say another 48 lbs.  
[The extra weight in gun is here partly due to the automatic mechanism, partly due to more elaborate arrangements for cooling the gun].

#### ***Note.***

The comparative weights given speak for themselves in considering the question of mobility.

#### **C. *Cooling arrangements.***

1. Rifle. No particulars.
2. Lewis Gun. Air cooled. [Enables roughly 500 to 1000 rounds to be fired in continuous rapid fire before the gun ceases to fire from overheating].

***Note.*** This figure of course varies with climate and temperature.

3. *Machine Gun.* Water cooled. (Enables the gun to continue firing as long as there is ammunition available and water in the barrel casing, *i. e.*, without a water refill roughly about 5000 rounds.

[The water in the barrel casing weights abouts 10 lbs].

*Note.* The water-cooled system is very much the more effective of the two, but pays for its efficiency in loss of mobility.

Other minor characteristics which it might be of advantage to note, are:—

[*d*] Rate of fire.

[*e*] Power of shock action.

[*f*] Liability of mechanism to jam and cease fire.

**D. Rate of fire.**

1. Rifle. 10 to 20 rounds per minute.

2. Lewis Gun 400 to 600 rounds per minute.

[Volume, taken together with the limitations of the gun, officially judged to be equivalent to 25 rifles].

3. Machine Gun. 400 to 600 rounds per minute.

[Volume, in the same way judged equivalent to 100 rifles]

**E. Power for shock action.**

1. Rifle. Bayonet.

2. Lewis Gun. None at all.

3. Machine Gun. None at all

**F. Liability to jam. (Stoppages).**

1. Rifle. Negligible.

2. Lewis Gun. } Can be divided into two categories.

3. Machine Gun. } [a] Short stoppages.  
[b] Prolonged stoppages.

Short stoppages are mostly avoidable stoppages.

Prolonged stoppages are usually unavoidable, being for the most part mechanical breakages.

The former can be minimised by a thorough training of gun teams in care of the gun, etc.; for they are very often due to non-observance of the rules laid down as regards care of the gun before, during, and after firing. In any case they

***Tactical use of Lewis Guns.***

should be recognised and rectified in a very short space of time if an automatic immediate action has been properly taught.

The latter class of stoppages usually take a little longer to rectify, but in either gun, to a team well trained in immediate action, stripping and in assembling the gun, usually present no very great difficulty.

Note 1. It is essential that spare parts should always be kept correct and in their proper places.

Note 2. The working parts of the Lewis gun are comparatively speaking weaker than are those of the machine gun, and are consequently more liable to break. This is one reason why the gun is less reliable than the machine gun.

***Summarising Deductions drawn.***

The Lewis and machine guns each possess certain advantages over the Rifle, viz:—

1. Volume of fire.
2. Accuracy of fire (As compared with the equivalent number of rifles.)

3. ***Suitability for overhead fire.***

The Machine Gun has the special advantage over the Lewis gun, of being also suitable for firing by night and indirect firing by day. Each of these advantages is obtained by a sacrifice of mobility, i. e., by adding something to the weight of the gun and tripod.

Neither the Lewis gun or the machine gun has any power at all for shock action.

The Lewis Gun is not such a reliable weapon as the Machine gun for sustained firing, owing to:—

- (a) Overheating. (It cannot be counted on for a longer burst than 500 rounds continuous).
- (b) The weakness of its working parts, which not infrequently break while firing.

On the other hand it has the advantage of being lighter and therefore more mobile than the machine gun. But both guns are of course very much less mobile than the rifle.

Having examined the chief characteristics of the Lewis gun, noting its possibilities and limitations, the next step is to apply this knowledge to such situations as we may expect to occur, and so decide on the best way of using the gun under varying circumstances.

The situations that I propose to discuss in these notes are such as one might expect to arise in a war transfrontier, or among the hills on the N. W. Frontier of India.

But precisely similar conditions and considerations would in all probability arise in any hilly country where communications were as difficult and artillery support insufficient.

Four situations are chosen for examination.

1. The attack.
2. The retirement.
3. With picquets.
4. On nightwork.

1. *The Attack.*

The essentials to remember are:—

1. That the most effective way of using the gun is for producing covering fire.
2. That the gun is of no use at all for shock action.
3. That it cannot fire while advancing.

The first two considerations make its true role quite clear, viz:—that it should be primarily used to produce covering fire; for which purpose it is unnecessary, in fact it is usually undesirable that the gun should be worked up to close ranges.

To do so.

1. Entails movement.
2. Increases the probability of casualties among gun teams.
3. Lessens the fire effect of the gun.
4. Increases the difficulties of ammunition supply.
5. Diminishes scope of manoeuvre.
6. Lessens possibilities of effective control.

And all for no adequate return.

It only remains then to decide on a general rule as to the most suitable range from which to produce this covering fire.



***Tactical use of Lewis Guns.***

## • —i. e. Application of the principle enunciated.—

The considerations are as follows.

1. Safety of one's own troops.
2. Effective covering fire.

The first depends on clear observation of the front line of the attacking troops.

The second on clear observation of fire.

Among the hills these considerations can usually be obtained at a range of between 800 yds. and 500 yds. from the main objective.

Within these limits then a suitable position should be sought, to occupy which, with the Lewis guns detailed for covering fire, becomes the object of whoever is commanding these guns; an object which he would probably best arrive at by working forward in bounds, behind the infantry, advancing groups of four guns at a time, covering their movement with the remainder of his guns; until finally a Lewis Gun firing line is established where he requires it.

One of the main reasons why the Lewis guns were pushed forward actually with the advancing platoons in France, was because the weapon was very largely relied on to repel the counter-attack whichs were inevitable shortly after a position was won. But any such counter-attack in the terrain under discussion is improbable. The nature of the ground is against it, and the Afghans and tribesmen fight without keeping anything in the nature of a reserve in hand.

There is one undoubted advantage, however, in pushing some Lewis guns forward either with or just in rear of the front line, viz, that when the position is won they will be at hand to pursue the enemy with fire.

Against this must be set the necessity of first capturing your position before being able to pursue with fire.....In other words. First catch your hare, then bake him.

At the same time these two contingencies, but especially the latter, do certainly point to an advantage in sending forward some of the Lewis guns; and when suggesting that the guns

should be massed for the purpose of covering fire, I do not mean it to be understood that they should *all* be used for that purpose

A compromise might very profitably be effected by detailing a few guns to accompany the assaulting troops, in which case, the decision as to whether they should actually accompany the firing line itself or otherwise would depend on circumstances, and might be left to whoever happened to be in command; the fact that they must arrive on the captured position immediately after it is captured being recognised as the deciding factor.

And again coming down to application; to decide on a rough rule of proportion to work on, I would suggest using three groups of four guns each for covering fire, while one group of four went forward with the attacking troops, *i. e.*, a proportion of three to one.

## 2. *The Retirement.*

Owing to their comparative lack of mobility, whether in retirement, from a piquet or in any other form of retirement the Lewis guns should always be sent away first

### *With Piquets.*

In a retirement from a piquet line they should at least be sent away with the first few men who retire; but it would be far preferable, and in most cases possible, to send them back before the retirement starts, to some place from which they would be in a position to cover the ultimate retirement of the piquet itself. M. G. support for the retirement of a piquet should, and probably would be available, if required, but at the same time it does no harm to prepare your own in case the other should not be available or be ineffective.

### *With Rearguards.*

In a retirement of the nature of a rearguard action I think that the best results might be obtained by working in groups of four guns, retiring by alternate groups preceding the infantry by a few hundred yards. Groups in this case would conform roughly to the movements of the company and not that of the platoon as seems to be the general custom at present.

It appears to me that this affords an example of where the advantages of combined training and handling are very marked.

Guns firing independently and uncontrolled, lack cohesion and may very easily be found insufficient to check a hostile advance ; or if the retirement is at all pressed, are apt to get lost. Used in groups of four guns the fire should be properly controlled, distributed and applied, and so be infinitely more effective ; There would also be very much less chance of the guns getting lost. The control of ammunition supply would also be facilitated.

A group of four guns well trained and properly handled is quite a powerful fire unit.

### **3. On Piquets**

Young officers who have been through Lewis gun courses will tell you that Lewis guns can be very usefully employed in the piquet line. But precisely why this is so and when, few seem to have any definite idea. And the general statement without a clear realisation of the limitations attendant is somewhat misleading.

For example.

The theory taught, that the Lewis gun is equivalent to 25 rifles, is a dangerous basis to work on when deciding on the composition and strength of piquets.

It is true that the volume of fire developed from one Lewis gun makes it particularly suitable for use in a confined space such as a picquet ; so much so that as long as its own fire can be observed it quite possibly may be counted on to produce the effect of 25 rifles ; But by night effectiveness of fire is very much reduced, especially among the hills where grazing fire is not usually obtainable. It is true that used in combination with Very lights they can be used at night with some degree of effect, but this degree is distinctly limited ; while in the event of the enemy rushing the post, the effectiveness is reduced to the actual strength of personnel sent on piquet with the gun, amounting to two or perhaps three men.

I suggest that these considerations very largely confine the usefulness of Lewis guns in the piquet line to day work, or at

y rate, very considerably reduce their comparative fighting  
ue if used by night.

o summarise.

The general effect produced by including Lewis guns among  
our piquets is, very considerably to strengthen them by day  
ut not to any very great extent by night. And as night time is  
y far the most dangerous time, there is some danger, unless  
his fact is realised, of their value being over-rated.

In fact, though their inclusion in the piquet line by day has  
everything to commend it, by night it is of somewhat doubtful  
value. Having decided that at any rate they can usefully be  
employed in the piquet line by day, it remains to be decided  
how they can be best distributed.

The point seems to me to turn on the question of mobility:—

From the point of view of purely fire effect it would probably  
be of advantage to have the majority of them with the outer  
line of piquets on all the highest peaks occupied. But they  
certainly do hamper the movement of the piquet. And so I  
suggest that, if the picquets are intentened to remain in position  
any length of time, the Lewis guns should be sent forward to  
the outer line of piquets, whether they be road or standing  
camp piquets.

If the piquets are merely road piquets put out by the  
advance guard and withdrawn by the rearguard, then it would  
probably be better to place the Lewis guns with the support-  
ing piquets instead of more forward with the piquet line proper,  
so as not to delay withdrawal and consequently the advance of  
the column.

An occasional Lewis gun might with advantage accompany  
some rather larger piquet than usual to the outer ring of  
picquets, such as might be regarded as pivotal iiquets and  
therefore of more than ordinary importance.

Placed with the supporting piquets the Lewis gun would  
be able to exercise its function of covering the advance and  
retirement of the outer piquets, and would moreover usually  
be able to influence the situation with regard to several  
pibuets instead of only one or perhaps two.

*In Night Work.**On Perimeter.*

It will probably be often found that there are insufficient machine guns to cover the perimeter. In which case, in spite of the fact that Lewis guns are not really suitable for use by night, [for the reason that they cannot readily be fixed to fire on a definite line at a definite elevation], still with a little ingenuity a workable scheme could probably be arranged which would enable them to do so with a moderate amount of success.

For example:—By cutting grooves to take the gun in an ammunition or suitably sized biscuit box, filling the box with earth and fixing it in the parapet. In this way a rough and ready fixity of aim can be obtained, sufficiently practical for night firing.

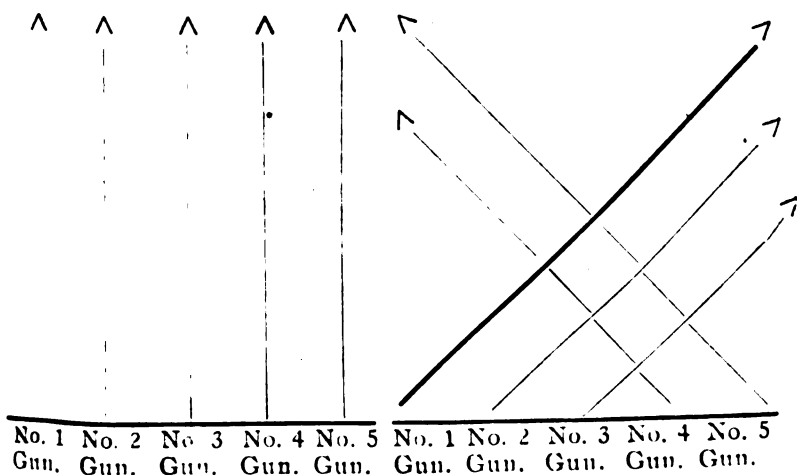
It is freely admitted that L. guns could never be as effective as machine guns owing to their limitations, especially their unreliability for continuous fire, which is a matter of primary importance in the question of breaking up an assault on the perimeter at night; at the same time it must be remembered that they will be very much more numerous and if you haven't got the machine guns it only remains to make the best use of what you have got.

Again, I noticed in the recent operations in Afghanistan, that at every one of the regular morning and evening stand-to alarms, practically every one of the Lewis guns guarding the perimeter was trained to fire to its immediate front, and the gun position itself appeared to be designed with this end in view. No attempt in fact was apparent to ensure that the guns would fire along the wire in front of the perimeter, or at any rate obliquely to their line of front; in fact in certain cases the idea did not seem to have been contemplated.

I suggest that there is no reason why the normal arrangements made by machine guns locking the front with fire should not at least be attempted by the Lewis guns as well. It would at any rate be a great deal more effective than allowing the guns to fire at the flashes according to the individual fancy of the Nos. 1., which apparently was the intention in the case I quote.

For the benefit of any who may perhaps not be acquainted with machine gun methods. The recognised method by which machine guns what is known as, "Lock the front with fire," consists in training and fixing the guns by day so that, firing obliquely to their front, the fire of each gun interlocks with that of some other gun on its left or right; and the whole covers the front with a stream of bullets which in no case rise above 6 ft. from the ground. And so, while the guns are firing, theoretically nothing can pass through without getting hit, and experience has proved that in practice this theory is very nearly born out by results. The guns, once arranged to fire in this way, are never allowed to shift their points of aim. If you happen to be Irish or have a mind capable of appreciating mixed metaphor, the idea may be visualised as an invisible wire entanglement formed by the bullets fired from these guns.

A glance at the accompanying rough diagram will make this clear I hope. Not necessarily all the available guns would be used for this purpose, a certain number might be required to cover some nulls or broken ground in dangerous vicinity to the perimeter; These might be first of all detailed and then the remainder used in the manner suggested, for I am sure that they would be better employed in this way than in firing indiscriminately.



## ***Tactical use of Lewis Guns.***

### ***4. Tendencies towards future developement.***

The tendency is for the Lewis Gun to follow on precisely the same lines of developement as the artillery weapon and machine guns; and for precisely the same reasons and advantages.

That is to say, the tendency is for the guns to be grouped together for purposes of training and tactical handling, because:—

1. *It is a fire unit as distinct from a shock unit, but for full developement of its fire power requires a specialist training.*

Both the artillery and the machine gun weapon started their career by being attached in pairs to the battalion, where they were little understood except by their immediate personnel, received little encouragement, and training suffered accordingly.

As each weapon developed, and became more and more complicated, and increased in numbers and efficiency, it attracted more and more attention until at last it was recognised as requiring specialist study, and was grouped together into batteries and companies for that purpose. And such organisation, as everybody knows, has born the test of service, if it may not even be said that it was occasioned by the needs of service.

2. *Training requires to be systematised and under more responsible supervision.*

At present, as previously explained, training is largely left to the Naik or N. C. O. in charge of the gun team, and it would be unreasonable to expect a very high standard of efficiency under these circumstances; if this N. C. O. were capable of it he would deserve promotion.

It may be thought that the regimental L. G. O. would naturally supply this supervision; but whatever it may be in theory, in actual practice the position of the L. G. O. in his unit is vague and unsatisfactory.

Some battalion commanders use him by putting all the Lewis Guns under him for training purposes, which in effect is nothing more than grouping them together as has been previously suggested, but the whole effect is spoilt by the fact that for all manoeuvre parade purposes the guns are again split up and made to rejoin their platoons, in pursuance of the idea that the gun is a platoon weapon.

The consequent result is, that the L. G. O. has but little inducement to train his guns for combined work as they are never used in combination; or with the best intentions in the world to do so, finds that during his best opportunity, viz, during manoeuvres, the guns are taken from him.

Further, this system is an interference with the company commander's unit, from the point of view that what an officer commands in the field it is desirable that he should train in cantonments.

Other battalion commanders on the other hand, take the opposite view, viz, that nothing should be allowed to interfere with the company commander's training and handling his own unit, and they consequently direct that he should supervise and direct the training of the Lewis guns of his company. The result being that the L. G. O. becomes in a vague kind of way an advisory person to whom to apply on questions appertaining to the Lewis gun.

*3. Training is required in collective action and control.*

Trained for collective action the Lewis guns are adaptable and always ready for independent action, the converse is not the case.

For example.

The distribution of targets so as to contain the whole front or immediate response to an order to concentrate on some special target.

These and other similar subjects require a considerable amount of training before any satisfactory standard is reached.

*4. Facilitates Ammunition Supply.*

Enabling the ammunition of guns to be pooled and used as occasion requires.

It has been suggested that the natural tendency is for Lewis guns to develop on the same lines as machine guns, and if this can be accepted, something can be done with the present organisation in the way of anticipating progress and so keeping up to date.

Most units are at present armed with 16 guns, i. e., four per coy.

These at present are organised so that one section of each platoon is formed of the Lewis gun detachment. In other words,



***Tactical use of Lewis Guns.***

there is no official attempt at all as yet to group Lewis guns, together for purposes of training or tactical handling.

The company oommander at least has it in his power if he so desire, to see that these sections work together as one unit under a selected N. C. O., he can in fact, use them as a company weapon instead of as platoon weapon without altering existing organistion.

A much more convenient and efficient organisation would be for the fourth platoon in each company to be entirely made up of the four Lewis guns attached to the company. It could then be placed under the very much more intelligent supervision and command during training and tactical handling, of an Indian Officer; which in itself would add very considerably to the keenness and efficiency of everyone concerned.

Personally I would even like to see this tendency carried a step further, i. e., an organisation grouping together the four platoons of four Lewis guns each into a company under the command of the L. G. O. who for this purpose would have to be of suitable seniority and not a very junior officer, which just at present will frequently be found is the case. The C. O. of the battalion then controlshis Lewis Guns through the the medium of the L. G. O., and in so doing is able to exercise far greater influence and control over the fight then would otherwise be the case.

In one unit to which I was recently attached, the L. G. O. was the Quartermaster, in another he was a very junior second lieutenant.

That is precisely the same position that M. G.'s. were in before the war started, and was one reason leading to their separation from the battalion into coy units of their own. A quarter-master cannot perform his own duties and look after the machine guns or Lewis guns as well, no matter how keen an officer he may be; a very junior officer either has not got the punch, 'experience', or the imagination necessary to force the training of an imperfectly understood weapon to the point of developing its full utility. It is not a difficult matter for guns to act independently if they have been trained to collective work, but it is a very different matter to attempt to improvise collective work if they have only been trained to work on individual lines.

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Any company commander who feels inclined to resist the suggestion that the Lewis guns should be used collectively, should ask himself the question whether he would prefer to advance to attack covered by fire of massed guns, intelligently controlled with British and Indian Officers directing their fire and movements; resulting as it *should* result in the whole of the battalion frontage being equally and efficiently covered or whether he would prefer to attack with his company covered by the fire of his Lewis guns as at present administered. There is no doubt whatever left in my mind which of the two I personally should prefer.

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## **"REVUE MILITAIRE SUISSE".**

**March 1920.**

The month's issue consists of four articles, the usual monthly chronicles of other nations, and the reviews of books. These will be treated seriatim.

(1) "*The Genesis of the Marne*", by Colonel Poudret.

This is in reality a review, being a criticism of General Legros' book of the same title.

After a preface in which he classifies current debate anent the Marne as heated rather than purposeful, the colonel directs his chief attack against General Legros' theory that the sole credit for taking the offensive belongs to Galliéni: that Joffre would never have moved without the latter's assistance. He maintains stoutly that the manoeuvre of turning the German right flank had been planned by the French G. H. Q. a full fortnight before it was actually carried out; and that, whereas Galliéni was better placed by virtue of his position in the field to judge the precise moment at which to commence it, which he did with brilliant accuracy; it was for Joffre alone to time the movement with due regard to the full consequences which it involved—consequences of which all could not possibly be known to the subordinate general.

Colonel Poudret divides the merit equally between Galliéni for gauging the situation precisely with the eye of a true commander and Joffre for his masterly following up of the advantage gained; and remarks somewhat pithily that there is surely room for two heroes in the immortal glory of the Marne.

Another point of controversy dealt with is the opening of the battle of the Ourcq on the 5th of September. Galliéni has been criticised adversely as having launched a premature attack: Legros defends him by endeavouring to prove that delay in attacking would have been fatal: Colonel Poudret takes, with some show of evidence in support, the neutral view that the action was commenced by an encounter battle which surprised both sides.

Colonel Poudret's article is moderately worded throughout, and gains much strength by its moderation.

(2) "*The rôle of the engineer troops in the Great War*", by Colonel Lecomte. [First instalment].

The writer points out how the initial tendency in almost every army was for the engineer organisation to expand so as to embrace all the new ramifications of technical warfare such as gas, etc; whereas each of the new methods gradually demanded a special and detached service of its own, thus leaving the engineers at the finish practically only responsible for the work which they had always previously performed.

He assesses actual engineer duties in order of relative importance:—

- [a] Construction and destruction of communications.
- [b] Field fortification: i.e., fieldworks in the tactical area.
- [c] Preparation and maintenance of camps and cantonments.
- [d] Fighting.

He is probably in error in suggesting water supply as a possible primary function only in Palestine; and must have overlooked, to quote but a single illustration, the severe struggle for water on the chalky uplands of the Somme valley in 1916, which absorbed for some time a considerable proportion of the total of technical troops available. "Water supply where necessary" would probably make a correct addition to the first duty in his list.

[3] "*The Headgear of our army and the suppression of the kepi*" by Major de Valliere.

This article is of purely Swiss interest; and the author appears to concern himself rather with pleasing effects, than with the essential qualities of a headpiece to supplement the shrapnel helmet, such as protection from sun, cold, rain, etc, and comfort whilst sleeping in it.

[4] "*Erich Ludendorff*", by Colonel Feyler.

A notable article. At the commencement the writer draws a trenchant parallel between the German general and Napoleon. Firstly he records their similarity as deducible from Ludendorff's "Memoirs", in that as each new success swelled their ambition, so their power of foresight decreased and their betting on chance increased correspondingly: and then he charges the German

with the lack of three essential qualities, and is here interesting enough to permit of full quotation :—

“ If he [Ludendorff] possesses calculating power, he betrays no imagination. If he does understand the German soldiery, he does not seem to understand Men. If he does know the booklore [“ science ”] of strategy ; he has none of its real art—that spark of genius which causes the booklore to live and reveal itself in the creative action of a personality.”

The Colonel next follows up Ludendorff's growing trust in luck ; and remarks that after 1916 there is not a page in his book free from a wail at his diminishing resources. The German inveighs against all his Allies in turn, not omitting his own country : he pins his sole faith on each succeeding throw of luck, first the Russian débâcle, then the submarine campaign ; yet each is queasily thrown aside as it in its turn fails. Colonel Feyler doubts if Ludendorff ever did really see clearly through the situation in the later stages of the war, and asks poignantly if his actions in those days were not genuinely those of a gambler.

For an examination of the German strategy he refers us to General Buat's book on Ludendorff :—a book of which we shall apparently hear a great deal more. He contrasts the methods of Foch most favourably with those of the German ; and, in summing up, attributes to Ludendorff an overweening confidence based on his successes in Russia : successes which he should have known were not likely to be so easily secured over the superior soldiery of the western Allies.

[5] *French, Swiss, and Italian monthly chronicles.*

There is nothing of unusual interest in these : the Swiss record is mainly concerned with the military budget : the French one with the possible future length of service of the 1920 class of conscripts in view of the requirements of civil reconstruction as opposed to the attitude of Germany ; whilst the chief theme of the Italian one is the inadequacy of the recent decrees which profess to embody the present extent of military reform.

[6] *Reviews of books.*

Nothing of special interest.

## **"REVUE MILITAIRE GENERALE." (Paris).**

*February 1920.*

The month's issue contains four articles, which will be reviewed seriatim; and a review of one book.

(1). "*The role of Belfort in 1914*," by General Thevenet. (final instalment).

General Thevenet brings his exposition to an end without arriving at any general conclusions, save perhaps to accentuate the double objective of the operations based on Belfort as:—

- (a) The closing of the gap between the Vosges and the Swiss frontier, and
- (b) The pushing of the battle-line as far forward into Alsace as the available resources permitted, followed by the construction of successive lines of fieldworks between the front and Belfort: so as to save the fortress itself from the fate of Liège and Namur.

[2] "*The metamorphosis of the German army from 11th November 1918 to the 11th November 1919*", by Jean de Thonague.

The writer commences by the pertinent if rhetorical question whether the army has really been metamorphosed at all. The modifications of the General Staff's original plans for demobilisation which were enforced by the sudden collapse of autumn 1918 are traced with some care; and there are some amusing asides as to how deserters had to be classed as "leave men" and politely asked to report to the nearest military authority so as to "regularise their demobilisation", when it became obvious that the then unstable government of Germany no longer possessed adequate means of treating their great number more satisfactorily.

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## **Tactical use of Lewis Guns.**

### *4. Tendencies towards future development.*

The tendency is for the Lewis Gun to follow on precisely the same lines of development as the artillery weapon and machine guns; and for precisely the same reasons and advantages.

That is to say, the tendency is for the guns to be grouped together for purposes of training and tactical handling, because -

1. *It is a fire unit as distinct from a shock unit, but for full development of its fire power requires a specialist training.*

Both the artillery and the machine gun weapon started their career by being attached in pairs to the battalion, where they were little understood except by their immediate personnel, received little encouragement, and training suffered accordingly.

As each weapon developed and became more and more complicated, and increased in numbers and efficiency, it attracted more and more attention until at last it was recognised as requiring specialist study, and was grouped together into batteries and companies for that purpose. And such organisation, as everybody knows, has born the test of service, if it may not even be said that it was occasioned by the needs of service.

2. *Training requires to be systematised and under more responsible supervision.*

At present, as previously explained, training is largely left to the Nalk or N. C. O. in charge of the gun team, and it would be unreasonable to expect very high standards of efficiency under these circumstances, if this N. C. O. were capable of it he would deserve promotion.

It may be thought that the regimental L. G. O. would naturally supply this consideration; but whatever it may be in theory, in actual practice the position of the L. G. O. in his unit is vague and unsatisfactory.

Some battalions have endeavoured to remedy this by putting all the Lewis Guns under their training purposes, which in effect is nothing more than recognising the fact, as has been previously suggested, but the whole is based upon the fact that for all manoeuvre purposes, the Lewis guns are a unit set up and made to render the right as an integral part of the unit, that the gun is a part of the unit.

The consequent result is, that the L. G. O. has but little inducement to train his guns for combined work as they are never used in combination; or with the best intentions in the world to do so, finds that during his best opportunity, viz, during manoeuvres, the guns are taken from him.

Further, this system is an interference with the company commander's unit, from the point of view that what an officer commands in the field it is desirable that he should train in cantonments.

Other battalion commanders on the other hand, take the opposite view, viz, that nothing should be allowed to interfere with the company commander's training and handling his own unit, and they consequently direct that he should supervise and direct the training of the Lewis guns of his company. The result being that the L. G. O. becomes in a vague kind of way an advisory person to whom to apply on questions appertaining to the Lewis gun.

3. *Training is required in collective action and control.*

Trained for collective action the Lewis guns are adaptable and always ready for independent action, the converse is not the case.

For example.

The distribution of targets so as to contain the whole front or immediate response to an order to concentrate on some special target.

These and other similar subjects require a considerable amount of training before any satisfactory standard is reached.

4. *Facilitates Ammunition Supply.*

Enabling the ammunition of guns to be pooled and used as occasion requires.

It has been suggested that the natural tendency is for Lewis guns to develop on the same lines as machine guns, and if this can be accepted, something can be done with the present organisation in the way of anticipating progress and so keeping up to date.

Most units are at present armed with 16 guns, i. e., four per coy.

These at present are organised so that one section of each platoon is formed of the Lewis gun detachment. In other words,



***Tactical use of Lewis Guns.***

there is no official attempt at all as yet to group Lewis guns, together for purposes of training or tactical handling.

The company commander at least has it in his power if he so desire, to see that these sections work together as one unit under a selected N. C. O., he can in fact, use them as a company weapon instead of as platoon weapon without altering existing organisation.

A much more convenient and efficient organisation would be for the fourth platoon in each company to be entirely made up of the four Lewis guns attached to the company. It could then be placed under the very much more intelligent supervision and command during training and tactical handling, of an Indian Officer; which in itself would add very considerably to the keenness and efficiency of everyone concerned.

Personally I would even like to see this tendency carried a step further, i. e., an organisation grouping together the four platoons of four Lewis guns each into a company under the command of the L. G. O. who for this purpose would have to be of suitable seniority and not a very junior officer, which just at present will frequently be found is the case. The C. O. of the battalion then controls his Lewis Guns through the medium of the L. G. O., and in so doing is able to exercise far greater influence and control over the fight than would otherwise be the case.

In one unit to which I was recently attached, the L. G. O. was the Quartermaster, in another he was a very junior second lieutenant.

That is precisely the same position that M. G's. were in before the war started, and was one reason leading to their separation from the battalion into coy units of their own. A quartermaster cannot perform his own duties and look after the machine guns or Lewis guns as well, no matter how keen an officer he may be; a very junior officer either has not got the punch, 'experience', or the imagination necessary to force the training of an imperfectly understood weapon to the point of developing its full utility. It is not a difficult matter for guns to act independently if they have been trained to collective work; but it is a very different matter to attempt to improvise collective work if they have only been trained to work on individual lines.

### ***Tactical use of Lewis Guns.***

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Any company commander who feels inclined to resist the suggestion that the Lewis guns should be used collectively, should ask himself the question whether he would prefer to advance to attack covered by fire of massed guns, intelligently controlled with British and Indian Officers directing their fire and movements; resulting as it *should* result in the whole of the battalion frontage being equally and efficiently covered or whether he would prefer to attack with his company covered by the fire of his Lewis guns as at present administered. There is no doubt whatever left in my mind which of the two I personally should prefer.

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## **"REVUE MILITAIRE SUISSE".**

**March 1920.**

The month's issue consists of four articles, the usual monthly chronicles of other nations, and the reviews of books. These will be treated seriatim.

(1) "*The Genesis of the Marne*", by Colonel Poudret.

This is in reality a review, being a criticism of General Legros' book of the same title.

After a preface in which he classifies current debate anent the Marne as heated rather than purposeful, the colonel directs his chief attack against General Legros' theory that the sole credit for taking the offensive belongs to Galliéni: that Joffre would never have moved without the latter's assistance. He maintains stoutly that the manoeuvre of turning the German right flank had been planned by the French G. H. Q. a full fortnight before it was actually carried out; and that, whereas Galliéni was better placed by virtue of his position in the field to judge the precise moment at which to commence it, which he did with brilliant accuracy; it was for Joffre alone to time the movement with due regard to the full consequences which it involved—consequences of which all could not possibly be known to the subordinate general.

Colonel Poudret divides the merit equally between Galliéni for gauging the situation precisely with the eye of a true commander and Joffre for his masterly following up of the advantage gained; and remarks somewhat pithily that there is surely room for two heroes in the immortal glory of the Marne.

Another point of controversy dealt with is the opening of the battle of the Ourcq on the 5th of September. Galliéni has been criticised adversely as having launched a premature attack: Legros defends him by endeavouring to prove that delay in attacking would have been fatal: Colonel Poudret takes, with some show of evidence in support, the neutral view that the action was commenced by an encounter battle which surprised both sides.

Colonel Poudret's article is moderately worded throughout, and gains much strength by its moderation.

(2) "*The rôle of the engineer troops in the Great War*", by Colonel Lecomte. [First instalment].

The writer points out how the initial tendency in almost every army was for the engineer organisation to expand so as to embrace all the new ramifications of technical warfare such as gas, etc; whereas each of the new methods gradually demanded a special and detached service of its own, thus leaving the engineers at the finish practically only responsible for the work which they had always previously performed.

He assesses actual engineer duties in order of relative importance:—

- [a] Construction and destruction of communications.
- [b] Field fortification: i.e., fieldworks in the tactical area.
- [c] Preparation and maintenance of camps and cantonments.
- [d] Fighting.

He is probably in error in suggesting water supply as a possible primary function only in Palestine; and must have overlooked, to quote but a single illustration, the severe struggle for water on the chalky uplands of the Somme valley in 1916, which absorbed for some time a considerable proportion of the total of technical troops available. "Water supply where necessary" would probably make a correct addition to the first duty in his list.

[3] "*The Headgear of our army and the suppression of the kepi*" by Major de Valliere.

This article is of purely Swiss interest; and the author appears to concern himself rather with pleasing effects, than with the essential qualities of a headpiece to supplement the shrapnel helmet, such as protection from sun, cold, rain, etc, and comfort whilst sleeping in it.

[4] "*Erich Ludendorff*", by Colonel Feyler.

A notable article. At the commencement the writer draws a trenchant parallel between the German general and Napoleon. Firstly he records their similarity as deducible from Ludendorff's "Memoirs", in that as each new success swelled their ambition, so their power of foresight decreased and their betting on chance increased correspondingly: and then he charges the German

with the lack of three essential qualities, and is here interesting enough to permit of full quotation :—

“If he [Ludendorff] possesses calculating power, he betrays no imagination. If he does understand the German soldiery, he does not seem to understand Men. If he does know the booklore [“science”] of strategy; he has none of its real art—that spark of genius which causes the booklore to live and reveal itself in the creative action of a personality.”

The Colonel next follows up Ludendorff's growing trust in luck; and remarks that after 1916 there is not a page in his book free from a wail at his diminishing resources. The German inveighs against all his Allies in turn, not omitting his own country: he pins his sole faith on each succeeding throw of luck, first the Russian débâcle, then the submarine campaign; yet each is queasily thrown aside as it in its turn fails. Colonel Feyler doubts if Ludendorff ever did really see clearly through the situation in the later stages of the war, and asks poignantly if his actions in those days were not genuinely those of a gambler.

For an examination of the German strategy he refers us to General Buat's book on Ludendorff:—a book of which we shall apparently hear a great deal more. He contrasts the methods of Foch most favourably with those of the German; and, in summing up, attributes to Ludendorff an overweening confidence based on his successes in Russia: successes which he should have known were not likely to be so easily secured over the superior soldiery of the western Allies.

[5] *French, Swiss, and Italian monthly chronicles.*

There is nothing of unusual interest in these: the Swiss record is mainly concerned with the military budget: the French one with the possible future length of service of the 1920 class of conscripts in view of the requirements of civil reconstruction as opposed to the attitude of Germany; whilst the chief theme of the Italian one is the inadequacy of the recent decrees which profess to embody the present extent of military reform.

[6] *Reviews of books.*

Nothing of special interest.

## **"REVUE MILITAIRE GENERALE." (Paris).**

*February 1920.*

The month's issue contains four articles, which will be reviewed seriatim; and a review of one book.

(1). "*The role of Belfort in 1914*," by *General Thevenet*. (final instalment).

General Thevenet brings his exposition to an end without arriving at any general conclusions, save perhaps to accentuate the double objective of the operations based on Belfort as:—

- (a) The closing of the gap between the Vosges and the Swiss frontier, and
- (b) The pushing of the battle-line as far forward into Alsace as the available resources permitted, followed by the construction of successive lines of fieldworks between the front and Belfort: so as to save the fortress itself from the fate of Liège and Namur.

[2] "*The metamorphosis of the German army from 11th November 1918 to the 11th November 1919*", by *Jean de Thonaque*.

The writer commences by the pertinent if rhetorical question whether the army has really been metamorphosed at all. The modifications of the General Staff's original plans for demobilisation which were enforced by the sudden collapse of autumn 1918 are traced with some care; and there are some amusing asides as to how deserters had to be classed as "leave men" and politely asked to report to the nearest military authority so as to "regularise their demobilisation", when it became obvious that the then unstable government of Germany no longer possessed adequate means of treating their great number more satisfactorily.

There is an interesting exposé of how the nominal reduction of the old army units by the release of serving soldiers was largely compensated for by absorbing into them the repatriated prisoners of war; and the writer also brings to light some of the machinations of the government to preserve the Officers' Corps as intact as possible whilst still shewing on paper as realistic a break-up of it as was required by the Peace Treaty terms.

In the conclusion of the present instalment we are shewn how all the essential parts of the army still remain, i. e., those parts whose enlargement when circumstances either permit or necessitate will allow of a quick expansion of the whole army to an almost indefinite size. We are promised in a future instalment an exposé of how the Government is keeping up the body and spirit of the old Officers Corps, by secret subvention of various clubs and guilds for officers' of the kind so favoured by all classes and communities of the German people.

In general, M. de Thonague leaves the impression that the German army was mainly demobilised by the General Staff with extreme care and forethought with a view to future re-habilitation, rather than by the nation in accordance with the peace Treaty.

(3). *A detail of history:—the 42nd French Infantry Division at the battle of the Marne, by the Commandant de Civrieux.*

This article is a tactical record, of no great interest to other nations.

(4). *Strategy and operations in the east (i. e. the east of France), by Captain Kuntz. (2nd instalment).*

A remarkable article. Captain Kuntz commences by investigating the abortive French dash to Mulhausen on August the 8th 1914, and condemns it as a mere raid: pointing out that it was pushed too far in advance of the supporting troops in the Vosges; and that, as actually happened, it was bound to provoke a heavier counter-attack than the raiders were able to withstand. The rest of this month's instalment is devoted to a careful examination of the strategy of the great German offensive in the west in 1914: framed as an analysis pending future access to the original orders which directed it and are not yet available.

The general operation is classified as a tripartite mixture resulting from three chief influences:—

[2] Double envelopement, [ascribed to the doctrines of Schlieffen] by:—

[a] The turning movement by the Ist, IIInd, IIIrd and IV armies in Belgium, and

[b] The advance of the VIth, VIIth, and VIIIth armies from Lorraine towards the Charmes gap,

and through it in due time. [They never got through it, of course, being checked at the Grand Couronne]

[ii] The eventual knock-out to be given at the centre [ascribed to Moltke's teaching] by the Vth army.

[iii] The principal effort [i, e, the eventual centre thrust] to devolve upon the Vth Army under the Crown Prince, aided at need by the Royal Duke of Wurtemberg's IVth army. [Two principal royalties:— German Imperialistic and dynastic considerations]

Despite this apparent plurality of purpose, the writer refuses to believe that the Germans were so far at fault militarily as to aim at the simultaneous achievement of these three tasks with the French Army still intact, one consideration alone being that the Crown Prince's 200,000 men could never have faced, even with the Duke of Wurtemberg's 200,000 more, the French concentration of 600,000 at their centre. He credits the Germans with very complete knowledge of the actual French dispositions and summarises their strategical plan as follows:—

[a] The Allies' left flank to be turned via Belgium.

[b] The French right to be turned only when objective [a] has been sufficiently achieved: the German left to pin the French right to its ground until then.

[c] The knock-out to be given in the centre, only when [a] and [b] are ripe.

Attention is drawn to the skilful concealment of the northern outflanking attack's real strength; and the German plan for this is enunciated as follows:—

[1] Von Emmich's army is intended only for the destruction of the Belgian fortresses.

[ii] It must be strong enough for this; but not for anything else, and designedly so relatively weak that, so long as it spends itself on those fortresses, the French will continue to expect the main attack in the centre: since Von Emmich will screen the advance of the Ist IInd and IIIrd armies.



[iii] The latter's whereabouts will thus be camouflaged until the Belgian obstacle has been removed and the three armies themselves are well forward.

Only at Mons ["bataille de Charleroi"] was the "curtain rent"; and then, with Von Emmich's task done, the Belgian obstacle removed, and the Ist IInd and IIIrd armies well on their way in the outflanking attack, the full strength of that attack was allowed to reveal itself to the French with all the designed degree of unexpectedness and imminence.

In the brief summary with which he concludes the present instalment, Captain Kuntz, unlike certain other critics, holds a strong brief for the German grand strategy; and attributes its overthrow only to the splendid tactical victories of the Allies at the Grand Couronne and at the Marne.

[5] *Review:—"General Buat's "Ludendorff".", by Jean Bigorre.*

A review of a review is apt to make either involved or factious literature; suffice to say that M. Bigorre accredits General Buat, in his apparently annotated and compressed translation from the German, with having explained the intents and purposes of Ludendorff in his souvenirs very much better and more clearly than the German general himself has done. It should be worth while securing General Buat's book itself, for all those interested.

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## **" THE SQUADRON ".**

BY ARDERN BEAMAN.

(*Messrs John Lane, The Bodley Head, 8-6d. net*)

In recounting the adventures of a Single squadron of cavalry during fourteen months of the western campaign, the author's purpose is only to paint in plain and faithful colours the life and sentiments of his unit on field service; and no attempt is made to encroach upon military history or military criticism. He has succeeded admirably in portraying the activities, hopes, fears and achievements of that small and very self-contained unit; and is fortunate in being able to include in his personal narrative two of the occasions on which the cavalry figured appreciably in the fortunes of battle: namely the stemming of the German offensive in March 1918 and the final Allied advance.

Even amongst the better known accounts of eyewitnesses the book stands out as a remarkable record of observation and memory. Vivid detail, related with a strong personal touch-characterises every page, whether the subject be the peaceful life of the back areas or the thick of a broken and hotly contested battle line; and events and surroundings with their attendant sentiments are painted in brief word-pictures refreshing in their accuracy. Those professional journalists who flooded the newspapers with flowery but scarcely realistic battle pictures throughout the course of the war have volumes to learn from Captain Beaman in the gentle art of sticking to the plain truth, but of still making that truth clear, alive, and suggestive.

The narrative opens in September 1917 with the squadron at peace in western France; and the first six chapters are taken up with a detailed account of officers, men, billets, and the routine of daily life. In this respect it is possibly a pity that the author has devoted so much space here to matter that will doubtless provide a host of happy reminiscences to a few people concerned but little interest to the world at large: but the vividness and realism of his descriptions is out of the ordinary, and they make very pleasant reading.

Cambrai brought the squadron up to the battle area; but it was denied a share in active operations. Shortly afterwards

however it paid its dues in the holding of the once more stationary line, by contributing towards one of the dismounted cavalry "battalions" which periodically helped so much to relieve the attenuated and wearied infantry between major operations.

After its turn at trench work the squadron spent two months or so in comparative inactivity; until March saw it tried to its utmost on horseback and foot in combating the great German offensive that had been advertised so long and so loudly. In April it rode to the north to assist in barring the road to St. Venant, remaining continually in support under the usual trying conditions which involved casualties without the chance of hitting back.

May, June and July were months of rest, recuperation and re-fitting: then came the final advance eastward; and from the beginning of August until the armistice the squadron knew little of rest or of rearward areas. In the chapter entitled "The last lap" there is a terse but telling description of a small but thoroughly successful action, whose brief words shew well what it is really like to fight a modern open fight and lose one's friends therein.

The whole book is written in a keen introspective spirit, with an expectational flair for the details that count in narration, and a shrewd sense of not too derisive humour for the absurdities of daily life that pass unnoticed with half of us. It has two failings when judged from a general standpoint, which, however, detract little from its unusual quality. Firstly it contains what is a possible excess of intimate camaraderie and the luxury of good and useful billets: to the uninitiated it might suggest a life centred rather in personalities than in the battle unit, and sustained by long freedom from casualties and by a predominant share of the goodly existence to be had in rear of General Headquarters. Secondly it is occasionally apt to be sensitive and imaginative to the verge of the unconvincing. Most of those who saw war at close quarters can remember what they felt like in the bad moments, and pretty black it was too; but an author who "danced about in an agony of despair", whose "Kuees

knocked together and who began to tremble all over until he had to sit down" from merely watching a battle, and who more than once had "cold shivers down his back" at the mere thought of possibilities, may, it is feared, be occasionally mistaken by reason of his some-what forced emotions for one of those folk who cannot see reality at their elbow for self-created fancies before their eyes.

A small trait of an other kind calls perhaps for humouring rather than for criticism; but it is not quite patent why a sufficiently well known officer of cavalry should fancifully assume, for literary purposes, the guise of a "padre", even to the extent of speaking of a decoration having been awarded to his "cloth" rather than to himself.

For all these minor points, let it be said that the book has real and exceptional merit. Captain Beaman's descriptive and narrative powers are second to none among war writers; and, whilst adhering strictly to plain truth and to unadorned facts, he touches with genius the chords of pathos, horror, exultation, and all the rest which go to make up the gamut of sentiment in battle. "The Squadron" should add a solid quota to his already established reputation as a man of letters.

"Vic".

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## **"THE BOMBAY VOLUNTEER RIFLES."**

### **A History.**

BY SAMUEL T. SHEPPARD.

(*The Times Press, Bombay*).

Although the present continuity of the Bombay Volunteer Rifles (15th Bombay Battalion I. D. F.) dates back only to 1877, Mr. Sheppard's work evinces the correct intuition that the history of the corps should embody the history of volunteering in Bombay; and opens with the inception of the "Fencibles", that earliest volunteer unit of Bombay, which resulted in 1799 from the deliberations of 1798, and whose spirit and traditions are perpetuated in the battalion of today.

As a history, the book is very complete. The author shews us that the "Fencibles", that first lineal ancestor of the modern corps, lasted until 1806, when the waning of the Napoleonic menace in the east and the peace with Scindia absolved the Indian ports from the necessity of supplementing the regular forces by local bodies. After 1806 came a long period of inactivity, which ended only in 1860 with the formation of the Bombay Volunteer Rifles, mainly as a result of the feelings and apprehensions arising from the events of 1857-8. From 1860 to 1870 the corps pursued a somewhat chequered career, dissolving in 1862, re-appearing in 1866, and breaking up again in 1870, not unaided to that end by the military financial authorities. After a short lapse of seven years it was reborn in 1877, and since then it has enjoyed a continuous existence; not without ups and downs, but nevertheless gradually establishing itself more and more firmly until it reached the pitch of efficiency which enabled it to help so appreciably in the Great War of 1914-18.

The early days of the corps possess a peculiar interest. We find a certain resemblance to recent times in the way in which the provision of all the amenities, not to mention certain actual necessities, of the unit devolved on the theoretically inexhaustible purses of its volunteer officers. It may, however, come as news to some that the Fencibles of 1799 possessed not

only European companies, but also complements of Indians and Parsees, the latter being reserved for non-combatant duties; and it is more than interesting to see how the present 117th Mahrattas were formed by the bodily absorption into the regular army of almost the entire Indian personnel of those same Fencibles.

Although the book is essentially a history of an individual unit, Mr. Sheppard may be said to have furnished us with a typical illustration of the course of volunteering in India. We see the fluctuations of the corps corresponding accurately with the periodical phases of public and private feeling throughout the decades; it flourishes in time of need and of sympathy from the right quarter, and it wanes when authority is unsympathetic or inert. The same difficulties that have beset volunteering throughout the ages cross its path again and again: lack of military accommodation, lack of facilities, intermittent waves of apathy amongst its members themselves, even the disconcerting stares of the fair sex at an uncongenial uniform! Yet the corps survives them all; and, just as did our volunteer units at home, it reaches a higher pitch of efficiency than ever previously just when the Great War brings with it the time of greatest need.

Much of the latter portion of the book is devoted to the share of the corps in the Great War, especially the doings of the draft which it sent to East Africa as a part of the Volunteer Machine-gun Company; and here we find enough matter to reflect the greatest credit on what was, until 1917, purely a volunteer organisation. The author's final caustic comment that:—"the Act which abolished the Indian Volunteers retained the voluntary system in so far as the members of the Indian Defence Force are to this day unpaid conscripts!" must in all fairness remain unchallenged in the light of the necessities of yesterday. He points out that at Bombay, at any rate, compulsion did not kill the volunteering spirit; and one may hope that, whatever form the future organisation eventually assumes, it

***Bombay Volunteer Rifles.***

will reveal the 15th Bombay Battalion I. D. F. as keen and as efficient as the war has proved them to be, and will restore to them their historic title of the "Bombay Volunteer Rifles" in which they take such a justifiable pride.

To summarise the book, which is most readably presented and well illustrated : it is a carefully drawn up history duly interspersed with comment, humour, and anecdote ; and, apart from its especial interest to the corps and to the citizens of Bombay, its character as a typical history of volunteering in India imparts to it a genuine value for every military library.

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Vol. XLIX.]

October 1920.

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# Journal

OF THE

## United Service Institution of India.

Published under the Authority of the Council.



SIMLA:

UNITED SERVICE INSTITUTION OF INDIA.

Published Quarterly.

2000C

Price Rupees 2-8.

Printed by S. H. LIDDELL, Longacre, Simla.

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The Committee do not undertake to authorise the publication of such papers as are accepted, in the order in which they may have been received.

Contributors will be supplied with three copies of their paper *gratis*, if published.

Manuscripts of original papers sent for publication in the Journal will not be returned to the contributor, unless he expresses a wish to have them back and pays the postage.

# **United Service Institution of India.**

## **PATRON.**

His Excellency the Viceroy and Governor-General of India.

## **VICE-PATRONS.**

His Excellency the Governor of Madras.  
His Excellency the Governor of Bombay.  
His Excellency the Governor of Bengal.  
His Excellency the Commander-in-Chief in India.  
His Honour the Lieut. Governor of the U. P. of Agra and Oudh.  
His Honour the Lieut. Governor of the Punjab.  
His Honour the Lieut. Governor of Burma.  
His Honour the Lieut. Governor of Bihar and Orissa.  
His Excellency the Naval Commander-in-Chief, East Indies.  
The General Officer Commanding, Northern Command.  
The General Officer Commanding, Southern Command.

## **MEMBERS OF THE COUNCIL, 1920-21.**

### *Ex-officio Members*

- |   |   |
|---|---|
| 1. The Chief of the General Staff.                | 7. The Director General Indian Medical Services.    |
| 2. The Secretary, Army Department.                | 8. The Director Royal Indian Marine.                |
| 3. The Hon'ble Mr. H. R. C. Dobbs, C.S.I., C.I.E. | 9. The Director Military Operations.—General Staff. |
| 4. The Adjutant General in India.                 | 10. The Air Commodore, R. A. F.                     |
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| 6. The Director Medical Services.                 |   |

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| *2. Maj.-Genl. Sir J. Moore, K.C.M.G., C.B. | *7. Lt.-Col. H. R. Neville, O.B.E.     |
| *3. Brig.-Genl. H. R. Stockley, C.I.E.      | *8. Lt.-Col. A. C. Ogg, D.S.O., O.B.E. |
| *4. Col. A. F. Cumberlege, O.B.E., R.E.     | 9. Dr. G. T. D. Walker, C.S.I.         |
| *5. Lt.-Col. E. de Burgh, D.S.O.            |  |

\*Members of the Executive Committee and in addition.

Major-Genl. J. C. Rimington, C.B., C.S.I.	Major R. B. Deeds, M.C.
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### **SECRETARY & EDITOR SUPERINTENDENT BANKERS**

..LIEUT. COL. W. L. J. CAREY, R.A.  
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1. The United Service Institution of India is situated at Simla.
2. Officers wishing to become members of the United Service Institution of India should apply to the Secretary. The rules of membership are printed on the opposite page.
3. The reading-room of the Institution is provided with all the leading newspapers, magazines, and journals of military interest that are published.
4. There is a well-stocked library in the Institution, from which members can obtain books on loan, free. Suggestions for new books are solicited, and will be submitted to the Committee. Books are sent out to members V. P. for the postage, or bearing by railway.
5. The Institution publishes a Quarterly Journal in the months of January, April, July and October which is issued postage free to members in India and to all life members; but ordinary members wishing to have their journals sent to any address out of India must pay in advance Re. 1 per annum to cover foreign postage charges.
6. Members and the public are invited to contribute articles to the Journal of the Institution for which honoraria will be awarded by the Executive Committee. Rules for the guidance of contributors will be found on the opposite page.
7. MEMBERS ARE RESPONSIBLE THAT THEY KEEP THE SECRETARY CAREFULLY POSTED WITH REGARD TO CHANGES OF ADDRESS.
8. When on leave in England, members can, under the affiliation rules in force, attend the lectures and make use of the reading-room, etc., of the Royal United Service Institution, Whitehall, on payment of a subscription of 5 shillings per six months.

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## United Service Institution of India.

OCTOBER 1920.

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## **SECRETARY'S NOTES.**

### **I.—New Members.**

The following members joined the Institution between the 1st July 1920 and the 30th September 1920.

#### **LIFE MEMBERS.**

Capt. J. W. English.  
Capt. H. B. Graveston.

Capt. H. de L. Penfold.  
Capt. D. G. Carr.

Lieut. J. E. B. Gapper.

#### **ORDINARY MEMBERS.**

Major J. S. Lethbridge.  
Lieut. R. K. Garrow.  
Capt. A. B. Drysdale.  
Lieut. R. Lawrence.  
Lieut. E. E. G. L. Searight.  
Capt. D. L. Jenkins.  
Capt. L. F. Garrett.  
Lieut. L. S. Story Cooper.  
Lieut. J. C. Sutton.  
Major C. J. Everard.  
Capt. W. Lupton.

Capt. F. C. Simpson.  
Capt. L. Gilbert.  
Capt. C. J. Morris.  
Lt.-Col. W. H. Bowden.  
Lt.-Col. J. H. Howell Jones.  
Lieut. P. H. Franks.  
Capt. L. R. H. Atkins.  
Capt. F. H. Malyon.  
Lieut. G. G. Jamieson.  
Capt. W. de B. MacLaren.

### **II.—Examinations.**

Books on Military History and Languages with Dictionaries are available in the Library and the following books which may be found useful for reference by officers, studying for promotion examinations or entrance to the Staff College have been placed in the Library of the U. S. I. and are available for use by members.

#### **IMPERIAL MILITARY GEOGRAPHY.**

Imperial Defence. By Lt.-Colonel E. S. May.  
Outlines of Military Geography. By MacDonnell.  
Imperial Strategy. By Lt.-Colonel R. Pington.  
Military Geography. By Macquire.  
Introduction to Military Geography. By General E. S. May.  
War and the Empire. By Hubert Foster.

**Secretary's Notes.****MILITARY HISTORY. (SPECIAL PERIOD.)*****The Campaign of the British Army in France and Belgium  
up to 20th November 1914.***

Sir John French's Despatches.

Forty Days in 1914. By Major-General Maurice.

"1914." By Viscount French.

General Sketch of the European War. By Bellock.

The British Campaign in France, and Flanders, 1914. By A. Conan Doyle.

Nelson's History of the War.

Ypres. By the German General Staff.

Oxford Pamphlets. "August 1914. The Coming of the War." By Spenser Wilkinson.

Oxford Pamphlets 1914. No. VII.

" " " No. X.

The Times Documentary History of the War, Vol. V, Military, Part I, and Vol. VIII, Military, Part II.

Der Grosse Krieg. The Schlacht bei Mous (Grossen General-Stabes.)

Der Grosse Krieg. The Schlacht bei Mons Longwy (Grossen General-Stabes.)

---

***Development and Constitution of the British Empire.***

Historical Geography of the British Empire. By Hereford George.

Our Fighting Services. By Sir Evelyn Wood, v.c.

The Statesman's Year Book.

LUCAS, Sir C. P. The Beginnings of English Overseas Enterprise, 1917

MILLS, J. Saxon. The Future of the Empire, 1918.

POLLARD, A. F. The British Empire, 1909.

LUCAS, Sir C. P. The British Empire (6 lectures). 1918.

WILLIAMSON, J. A. The Foundation and Growth of the British Empire, 1918.

WOODWARD, W. H. The Expansion of the British Empire, 1907.

LUCAS, Sir P. C. Historical Geography of the British Colonies (Dominions). 7 Volumes. 1906-17.

Vol. 1—Mediterranean.

Vol. 2—West Indies.

Vol. 3—West Africa.

Vol. 4—South Africa.

Vol. 5—Canada.

Vol. 6—Australia.

Vol. 7—India,

## ***Secretary's Notes.***

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- KNIGHT, E. F.** Oversea Britian, 1907.
- MACKINDER, H. J.** Britian and the British Seas, 1907.
- EGERTON, H. E.** The Origin and Growth of the English Colonies and of their system of Government, 1903.
- JENKS, E.** The Government of the British Empire, 1918.
- JENKS, E.** A Short History of Politics, 1900.
- DICEY, A. V.** Introduction to the Study of the Law of the Constitution, 1908.
- BAGEHOT, W.** The English Constitution, 1909.
- SEELEY, Sir J.** The Expansion of England, 1883.
- LOWELL, A. Lawrence.** The Government of England, 1912.
- LYALL, Sir A. C.** The Rise and Expansion of the British Dominion in India, 1894.
- HUNTER, Sir W.W.** A Brief History of the Indian Peoples, 1907.
- FORTESCUE, Hon. J.W.** A History of the British Army, 8 Vols. 1899-1917. (In progress).
- CORBETT, Sir Jaulian.** England in the Seven Years War, 1907.
- MAHAN, Rear-Adm. A. T.** The Influence of Sea Power Upon History 1890.
- FROUDE, J. A.** The English in the West Indies, 1888.
- GRANT, W. L.** History of Canada.
- BRADLEY, A. G.** The Making of Canada, 1908.
- WILSON, B.** Nova Scotia, 1911.
- LUCAS, Sir C. P.** Report on British North America. By Lord Durham.
- HOGARTH, Prof. W. G.** The Nearer East, 1902.
- BRAND, R. H.** The Union South Africa, 1909.
- KELTIE, J. Scott.** The Partition of Africa, 1909.
- CROMER, Lord.** Modern Egypt, 1908.
- CAMERON, D. A.** Egypt in the Nineteenth Century, 1898,
- COLQUHOUN, A. R.** The Mastery of the Pacific, 1902.
- SCOTT, Ernest.** Short History of Australia.
- LORD, Walter, F.** The Lost Possessions of England, 1896.
- JENKS, E.** A History of the Australasian Colonies, 1912.
- FAWCETT, C. B.** Frontiers, 1918.
- KRITH, A. B.** Selected Speeches and Documents on British Colonial Policy. 2 Volumes, 1918.

Colonial Office List.

Whitaker's Almanack.

**III.—Payment for Articles in the Journal.**

Articles accepted for publication in the Journal are paid for, and a sum of approximately Rs. 400 is awarded for articles and reviews published in each Quarterly Journal.

**IV.—Contributions to the Journal.**

With reference to Army Regulations, India, Volume II, paragraph 487, and King's Regulations, paragraph 453, as amended by Army Order 340 of 1913, intending contributors to the Journal of the United Service Institution of India are informed, that action to obtain the sanction of His Excellency the Commander-in-Chief to the publication of any article in the Journal of the United Service Institution of India will be taken by the Committee. Contributors are, therefore, responsible that the sanction of their immediate superior has been obtained, and this should be noted on all articles sent for publication. Articles need not be submitted in duplicate.

Contributors must have their articles either typed or printed.

2. It has been decided to introduce two new items in the Journal headed—

i. Criticisms

ii. Notes on current Military and Naval questions.

The rules for (i) to be—

That the criticism should be headed with the title of the article criticised, and the date of the Journal in which published.

That criticisms should be signed with a nom-de-plume, but that critics must disclose their identity to the Secretary.

The rules for (ii) to be the same as for Articles.

**V.—Library Catalogue.**

The library catalogue revised up to 1st January 1916 is now available. Price Rs. 2 or Rs. 2-4-0 per V.P.P. A list of books received each year is published with the January Journal.

**VI.—Gold Medal Prize Essay 1920-21.**

For subject and conditions please see page IV.

**VII.—Army List Pages.**

The U. S. I. is prepared to supply members and units with manuscript or typewritten copies of Indian Army List pages, at the following rates:—

Manuscript, per page Re. 1.

Typewritten, per page Rs. 2.

## **Secretary's Notes.**

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### **VIII.—Books**

#### *Books Presented.*

<i>Title.</i>	<i>Sec.</i>	<i>No.</i>	<i>Author.</i>
German Official Account of the Russo-Japanese War	...	M. 951	Carl von Donal.
Campaign in Belgeria	...	M. 952	F. V. Greene.
Letters to the People of India on Responsible Government (1917)	...	N. 495	Lionel Curtis.
Italian Sea Power in the Great War (1918)	...	P. 85	Archibald Hurd.
Modern Tactics	...	S. 279	Capt. H. B. Gall.
Provisional Memoranda Staff College, Quetta	...	T 503	Staff College. Quetta.
Military Scheme and orders for the Coronation Durbar (1911)	...	A. 234	Supdt., Govt. Printing, India.
Army Book for the British Empire	...	A. 235	Lt. H. G. Good-enough and Lt.-Col. J. C. Dalton and others.

#### *Presented by Major-Genl Sir Alfred Bingley, K.C.I.E., C.B.*

A Glossary of the Tribes and Castes of the Punjab and N. W. F. P., Vol. I, published 1919	...	C. 59	Compiled by H. A. Rose, Esq., I.C.S.
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#### *Presented by the Punjab Government.*

Prehistoric castes, Villages and Towers of S. W. Colorado	...		J. W. Fewkes.
---	-----	--	---------------

#### *Presented by Bureau of American Ethnology.*

Memoirs of the Geological Survey of India (Palec. Indica)	...	K. 215	Geol. S. of India.
---	-----	--------	--------------------

#### *Presented by Geological Survey of India.*

Notes on Locomotive Design, etc.	...	D. 4i	R. K. Biernachi, C.I.E., I.S.O. and F.C., Royal Dawson, M.I.C.E.
----------------------------------	-----	-------	--

#### *Presented by the Chief Engineer, Railway Board of India.*



## **THE DIRECTION OF WAR**

A Study of Strategy. By Major-General W. D. BIRD, C.B., C.M.G., D.S.O.  
Royal 8vo. With 41 maps, 40s net. Cambridge Naval and Military Series.

The principles that govern the direction of war are constant, but the exact conditions in which any campaign was fought are unlikely to be repeated, and reliance on the experiences of one war is therefore liable to lead to false conceptions. In this volume the author has illustrated the application of principles by examples taken both from recent and more remote wars, and since past British experience is likely to be most instructive as regards future British campaigns, the examples quoted have been drawn from British rather than from foreign wars.

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*Agents in India—*

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## **Secretary's Notes.**

vi

<i>Title.</i>	<i>Sec.</i>	<i>No.</i>	<i>Author.</i>
<b>Catalogue of the Khalsa Darbar Records</b> 1919	...	E. 151	Sita Ram Kohli, M.A.
<i>Presented by the Chief Secretary to the Punjab Government.</i>			
<b>Memoirs of the Geological Survey of</b> <b>India</b>	...	K. 216	Govt. of India.
<i>Presented by Geological Survey of India.</i>			
<b>The New Squad Drill</b>	...	T. 504	Maj. L. D. Overell
<i>Presented by Messrs. Gale and Polden.</i>			

### *Books Purchased.*

<b>The Adventures of Dunsterforce</b>	...	N. 484	Major-Genl. L. C. Dunsterville, C.B. C.S.I.
<b>My Three Years in America</b>	...	N. 483	Count Bernstorff.
<b>The March on Paris, 1914</b>	...	M. 948	Genl. von Kluck.
<b>Sniping in France</b>	...	M. 949	Major H. Heskette-Pritchard, D.S.O. M.C.
<b>My Campaign in Mesopotami</b>	...	M. 950	Major-Genl. Sir C. V. F. Townshend, K.C.B., D.S.O.
<b>The Sepoy</b>	...	K. 214	Edward Candler.
"Oxford Pamphlet, August 1914". The Coming of the War	...	M. 953	Spenser Wilkinson.
"Oxford Pamphlet, No. 7, 1914". The Retreat from Mons, etc.	...	M. 954	H. C. Davis.
<b>Life of Sir Stanley Maude, Lt.-Genl.</b> K C.B., C.M.G., D.S.O.	...	B. 287	Major-Genl. Sir C. E. Callwell, K.C.B.
<b>The Crisis of the Naval War</b>	...	P. 86	Admiral of the Fleet Vt. Jellicoe of Scapa, G.C.B., O.M., G.C.V.O.
<b>Nile to Aleppo</b>	...	F. 362	Hector W. Dinning

**IX.—Sale of Periodicals.**

The following periodicals were sold at the prices given for the year ending 31st December 1920.

	Rs. A. P.
Blackwoods Magazine	20 0 0
Geographical Journal	12 0 0
Land and Water	12 0 0
Asiatic Review	6 0 0
Colonial Journal	4 0 0
L'Afrique Francaise	5 0 0
Arms and Explosives	3 0 0
Indian Military Record	5 0 0
Army and Navy Gazette	14 0 0
The Navy	2 8 0
Revue Militaire Suisse	5 0 0
U. S. A. Infantry Journal	5 0 0

Lots were drawn in cases where the same bid was received from one or more members.



# United Service Institution of India.

## GOLD MEDAL ESSAY COMPETITION 1920-21.

The Council have chosen as the subject for the Gold Medal Essay for 1920-21 the following:—

### INDIA AND THE NEXT WAR.

The following are the conditions of the competition:—

- (1) The competition is open to all gazetted officers of the Civil Administration, the Royal Navy, Army, and Royal Air Force or Indian Defence Force who are members of the U. S. I. of India.
- (2) Essays must be printed or type-written and submitted in *triplicate*.
- (3) When a reference is made to any work, the title of such work is to be quoted.
- (4) Essays are to be *strictly anonymous*. Each must have a motto, and enclosed with the essay there should be sent a *sealed* envelope with the motto written on the outside and the name of the competitor inside.
- (5) Essays will not be accepted unless received by the Secretary on or before the 30th June 1921.
- (6) Essays will be submitted for adjudication to 3 Judges chosen by the Council. When the decisions of the 3 Judges are received the Committee will submit the four essays, placed first in order by the Judges, with their recommendations on the award of the Gold Medal to the Council, who will decide whether the Medal is to be awarded and whether the essay may be published.
- (7) The name of the successful candidate will be announced at a Council Meeting to be held in September or October 1921.
- (8) All essays submitted are to become the property of the United Service Institution of India, *absolutely* and authors will not be at liberty to make any use whatsoever of their essays without the sanction of the Council.
- (9) Essays should not exceed about 15 pages of the size and style of the Journal, exclusive of any appendices, tables or maps.

By order of the Council,

SIMLA,

W. L. J. CAREY, LIEUT.-COL., R.A.,

30th Sept. 1920.

Secretary, U. S. I. of India.

# United Service Institution of India.

## PRIZE ESSAY GOLD MEDALLISTS.

*(With rank of Officers at the date of the Essay).*

- 1872...ROBERTS, Lieut.-Col. F. S., V.C., C.B., R.A.  
1873...COLQUHOUN, Capt. J. A. S., R.A.  
1874...COLQUHOUN, Capt. J. A. S., R.A.  
1879...ST. JOHN, Maj. O. B. C., R.E.  
1880...BARROW, Lieut. E. G., 7th Bengal Infantry.  
1882...MASON, Lieut. A. H., R.E.  
1883...COLLEN, Maj. E. H. H., S.C.  
1884...BARROW, Capt. E. G., 7th Bengal Infantry.  
1887...YATE, Lieut. A. C., 27th Baluch Infantry.  
1888...MAUDE, Capt. F. N., R.E.  
    YOUNG, Maj. G. F., 24th Punjab Infantry (especially awarded a silver medal).  
1889...DUFF, Capt. B., 9th Bengal Infantry.  
1890...MAGUIRE, Capt. C. M., 2nd Cav., Hyderabad Contingent.  
11891...CARDEW, Lieut. F. G., 10th Bengal Lancers.  
1893...BULLOCK, Maj. G. M., Devonshire Regiment.  
1894...CARTER, Capt. F. C., Northumberland Fusiliers.  
1895...NEVILLE, Lieut.-Col. J. P. C., 14th Bengal Lancers.  
1896...BINGLEY, Capt. A. H., 7th Bengal Infantry.  
1897...NAPIER, Capt. G. S. F. Oxfordshire Light Infantry.  
1898...MULLALY, Maj. H., R.E.  
    CLAY, Capt. C. H., 43rd Gurkha Rifles (especially awarded a silver medal).  
1899...NEVILLE, Col. J. P. C., S.C.  
1900...THULLIER, Capt. H. F., R.E.  
    LURBOCK, Capt. G., R.E., (especially awarded a silver medal).  
1901...RANKEN, Lieut.-Col. G. P., 46th Punjab Infantry.  
1902...TURNER, Capt. H. H. F., 2nd Bengal Lancers.  
1903...HAMILTON, Maj. W. G., D.S.O., Norfolk Regiment.  
    BOND, Capt. R. F. G., R.E., (especially awarded a silver medal).  
1904...MACMUNN, Maj. G. F., D.S.O., R.F.A.  
1905...COCKERILL, Maj. G. K., Royal Warwickshire Regiment.  
1907...WOOD, Maj. E. J. M., 99th Deccan Infantry.  
1908...JEUDWINE, Maj. H. S., R.A.  
1909...MOLYNEUX, Maj. E. M. J., D.S.O., 12th Cavalry.  
    ELSMIE, Maj. A. M. S., 56th Rifles, F. F., (especially awarded a silver medal).  
1911...Mr. D. PETRIE, M.A., Punjab Police.  
1912...CARTER, Major B. C., The King's Regiment.  
1913...THOMSON, Major A. G., 58th Vaughan's Rifles (F. F.)  
1914...BAINBRIDGE, Lieut.-Col. W. F., D.S.O., 51st Sikhs, (F. F.)  
    NORMAN, Major C. L. M.V.O., Q. V. O. Corps of Guides  
    (specially awarded a silver medal).  
1915...No award.  
1916...CRUM, Major W. E., V.D., Calcutta Light Horse.  
1917...BLAKER, Major W. F., R. F. A.  
1918...GOMPERTZ, Capt. A. V., M.C., R.E.  
1919...GOMPERTZ, Capt. M. L. A., 108th Infantry.  
1920...KEEN, Lt.-Col. F. S., D.S.O., 2/15 Sikhs.

## MACGREGOR MEMORIAL MEDALS.

1. The MacGregor Memorial Medal was founded in 1888 as a memorial to the late Major-General Sir Charles MacGregor. The medals are awarded for the best military reconnaissances or journeys of exploration of the year.

2. The following awards are made annually in the month of June:—

(a) For officers—British or Indian | silver edalm.

(b) For soldiers—British or Indian—a silver medal, with Rs. 100 gratuity.

3. For specially valuable work a gold medal may be awarded in place of one of the silver medals, or in addition to the silver medals, whenever the administrators of the fund deem it desirable. Also the Council may award a special additional silver medal, without gratuity, to a soldier, for special good work.

4. The award of medals is made by His Excellency the Commander-in-Chief as Vice-Patron, and the Council of the United Service Institution, who were appointed administrator of the Fund by the MacGregor Memorial Committee.

5. Only officers and soldiers belonging to the Army in India (including those in civil employ) are eligible for the award of the medal.\*

6. The medal may be worn in uniform by Indian soldiers on ceremonial parades, suspended round the neck by the ribbon issued with the medal.

### *Note.*

(i) Personal risk to life during the reconnaissance or exploration is not a necessary qualification for the award of the medal; but in the event of two journeys being of equal value, the man who has run the greater risk will be considered to have the greater claim to the reward.

(ii) When the work of the year has either not been of sufficient value or has been received too late for consideration before the Council meeting, the medal may be awarded for any reconnaissance during previous years considered by His Excellency the Commander-in-Chief to deserve it.

### **MacGregor Memorial Medallists.**

*(With rank of Officers at the date of the Award).*

1889...BELL, Col. M.S., V.C., R.E. (specially awarded a gold medal).

1890...YOUNGHUSBAND, Capt. F E., King's Dragoon Guards.

1891...SAWYER, Major H. A., 45th Sikhs.

RAMZAN KHAN, Havildar, 3rd Sikhs.

1892...VAUGHAN, Capt. H. B., 7th Bengal Infantry.

JAGGAT SINGH, Havildar, 19th Punjab Infantry.

1893...BOWER, Capt. H., 17th Bengal Cavalry (specially awarded a gold medal).

FAZALDAD KHAN, Dafadar, 17th Bengal Cavalry.

1894...O'SULLIVAN, Major G. H. W., R.E.

MULL SINGH, Sowar, 6th Bengal Cavalry.

---

\*N.B.—The terms "officer" and "soldier" include those serving in the British and Indian armies and their reserves; also those serving in Auxiliary Forces, such as the Volunteers and Corps under Local Governments. Frontier Militia Levies and military Police, also all ranks serving in the Imperial Service Troops.

**Secretary's Notes.****IX.—Sale of Periodicals.**

The following periodicals were sold at the prices given for the year ending 31st December 1920.

	Rs	A.	P.
Blackwoods Magazine	20	0	0
Geographical Journal	12	0	0
Land and Water	12	0	0
Asiatic Review	6	0	0
Colonial Journal	4	0	0
L'Afrique Française	5	0	0
Arms and Explosives	3	0	0
Indian Military Record	5	0	0
Army and Navy Gazette	14	0	0
The Navy	2	8	0
Revue Militaire Suisse	5	0	0
U. S. A. Infantry Journal	5	0	0

Lots were drawn in cases where the same bid was received from one or more members.



# United Service Institution of India.

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- (2) Essays must be printed or type-written and submitted in *triplicate*.
- (3) When a reference is made to any work, the title of such work is to be quoted.
- (4) Essays are to be *strictly anonymous*. Each must have a motto, and enclosed with the essay there should be sent a *sealed* envelope with the motto written on the outside and the name of the competitor inside.
- (5) Essays will not be accepted unless received by the Secretary on or before the 30th June 1921.
- (6) Essays will be submitted for adjudication to 3 Judges chosen by the Council. When the decisions of the 3 Judges are received the Committee will submit the four essays, placed first in order by the Judges, with their recommendations on the award of the Gold Medal to the Council, who will decide whether the Medal is to be awarded and whether the essay may be published.
- (7) The name of the successful candidate will be announced at a Council Meeting to be held in September or October 1921.
- (8) All essays submitted are to become the property of the United Service Institution of India, *absolutely* and authors will not be at liberty to make any use whatsoever of their essays without the sanction of the Council.
- (9) Essays should not exceed about 15 pages of the size and style of the Journal, exclusive of any appendices, tables or maps.

By order of the Council,

SIMLA,

W. L. J. CAREY, LIEUT.-COL., R.A.,

30th Sept. 1920.

Secretary, U. S. I. of India.



### **MacGregor Memorial Medallists—*contd.***

- 1895...DAVIES, Capt. H. R., Oxfordshire Light Infantry.  
GANGA DYAL SINGH, Havildar, 2nd Rajputs.
- 1896...COCKERILL, Lieut. G. K., 28th Punjab Infantry.  
GHULAM NABI, Sepoy, Q. O. Corps of Guides.
- 1897...SWYAYNE, Capt. E. J. E., 16th Rajput Infantry.  
SHAHZAD MIR, Dafadar, 11th Bengal Lancers.
- 1898...WALKER, Capt. H. B., Duke of Cornwall's Light Infantry  
ADAM KHAN, Havildar, Q. O. Corps of Guides.
- 1899...DOUGLAS, Capt. J. A., 2nd Bengal Lancers.  
MIHR DIN, Naik, Bengal Sappers and Miners.
- 1900...WINGATE, Capt. A. W. S., 14th Bengal Lancers.  
GURDIT SINGH, Havildar, 45th Sikhs.
- 1901...BURTON, Major E. B., 17th Bengal Lancers.  
SUNDAR SINGH, Colour Havildar, 31st Burma Infantry.
- 1902...RAY, Capt. M. R. E., 7th Rajput Infantry.  
TILBIR BHANDARI, Havildar, 9th Gurkha Rifles.
- 1903...MANIFOLD, Lieut.-Colonel C. C., I.M.S.  
GHULAM HUSSAIN Lance-Dafadar, Q. O. Corps of Guides.
- 1904...FRASER, Capt. I. D., R.G.A.  
MOGHAL BAZ, Dafadar, Q. O. Corps of Guides.
- 1905...RENNICK, Major F., 40th Pathans, (specially awarded a gold medal).  
MADHO RAM, Havildar, 8th Gurkha Rifles.
- 1906...SHAHZADA AHMAD MIR, Risaldar, 36th Jacob's Horse.  
GHAFUR SHAH, Lance-Naik, Q.O. Corps of Guides Infantry.
- 1907...NANGLE, Capt. M. C., 92nd Punjabis.  
SHEIKH USMAN, Havildar, 103rd Mahratta Light Infantry.
- 1908...GIBBON, Capt. C. M., Royal Irish Fusiliers.  
MALANG, Havildar, 56th Punjabi Rifles.
- 1909...MUHAMMAD RAZA, Havildar, 106th Pioneers.
- 1910...SYKES, Major P. M., C.M.G., late 2nd Dragoon Guards.  
(specially awarded a gold medal).  
TURNER, Capt. F. G., R.E.  
KHAN BAHADUR SIHR JUNG, Survey of India.
- 1911.. LEACHMAN, Capt. G. E., The Royal Sussex Regiment.  
GURMUKH SINGH, Jemadar, 93rd Burma Infantry.

**MacGregor Memorial Medallists—Contd.**

1912...PRITCHARD, Capt. B.E.A. 83rd Wallahjabad Light Infantry.  
(specially awarded a gold medal).

WILSON, Lieut. A. T., C.M.G., 32nd Sikh Pioneers.

MOHIBULLA, Lance-Dafadar, Q. V. O. Corps of Guides.

1913...ABBAY, Capt. B. N., 27th Light Cavalry.

SIRDAR KHAN, Sowar, 39th (K.G.O.) Central India Horse.

WARATONG, Havildar, Burma Military Police (specially  
awarded a silver medal).

1914...BAILEY, Capt. F. M., I.A. (Political Dept.)

MORSHEAD, Capt. H. T., R.E.

HAIDAR ALI, Naick, 106th Hazara Pioneers.

1915.. WATERFIELD, Capt. F. C., 45th Rattray's Sikhs.

ALI JUMA, Havildar, 106th Hazara Pioneers.

1916...ABDUR RAHMAN, NAIK, 21st Punjabis.

ZARGHUN SHAH, Havildar, 58th Rifles (F. F.)

(Specially awarded a Silver Medal).

1917...MAIN AFRAZ GUL, Sepoy, Khyber Rifles.

1918...NOEL, Capt. E. W. C., Political Department.

1919...KEELING, Lt.-Col. E. H., M.C., R.E.

ALLA SA, Jamadar, N. E. Frontier Corps.

1920.. BLAKER, Capt. L. V. S., Q. V. O. Corps of Guides.

AWAL NUR, C. Qm. Havildar, 2nd Bn. Q. V. O. Corps of  
Guides. (Special gratuity of Rs. 200.)

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***United Service Institution of India.***

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The publication of this number  
of the Journal  
has been delayed owing to labour  
troubles.

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# The Journal

OF THE

## United Service Institution of India.

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Vol. XLIX.                      OCTOBER 1920.                      No. 221

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### **WASTAGE OF ANIMALS IN WAR.**

BY MAJOR-GENERAL SIR J. MOORE, K.C.M.G., C.B.

*Director of Veterinary Services, India.*

Some years previous to the late War, while engaged on an article entitled "Horses of different countries and their Supply with relation to Military Service" read before the Royal United Service Institution, London, I roughly endeavoured to arrive at an estimate of the equine population of the world. My calculations amounted at that time to close on 80,000,000. The United States Department of Agriculture in the very valuable Reports of their Bureau of Animal Industry computed the number at 75,000,000.

By Continents, I estimated the number approximately as follows:—

Europe	...	...	...	40,000,000
Asia	...	...	...	11,000,000
Africa	...	...	...	1,250,000
Western Hemisphere	}	U. S. A. Canada & Mexico .		19,000,000
		Central & South America ...		6,000,000
Australasia	(	Australia and New Zealand Chiefly)		2,000,000
		...	...	

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79,250,000

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Of the 40,000,000 in Europe there were in:—

Russia ( European Russia )	..	22,096,000
Germany	...	4,184,000

**Wastage of Animals in War.**

Austria Hungary		{ Austria . 1,711,000 Hungary . 2,309,000 }	4,020,000
France	...	...	2,900,000
Italy	...	...	742,000
Sweden	...	...	525,000
Norway	...	...	151,000
Denmark	...	...	449,000
Holland	...	...	285,000
Belgium	...	...	241,000
Switzerland	...	...	109,000
Portugal	...	...	220,000
Spain -	...	...	397,000
Greece	...	...	100,000
Turkey ( in Europe )	...	...	300,000
Bulgaria	...	...	344,000
Servia	...	...	180,000
Rumania	...	...	864,000
The United Kingdom of Great Britain and Ireland			3,000,000

Taking the British Empire, my computation amounted to approximately 8,000,000, distributed as follows:—

The United Kingdom	...	...	3,000,000
Australia	...	...	1,626,000
New Zealand	...	...	287,000
India	...	...	1,343,000
Canada	...	...	1,500,000
South Africa (including Natal)	...	...	250,000
Jamaica	...	...	47,000
Mauritius	...	...	12,000
Malta	...	...	8,000
Newfoundland	...	...	6,000
Ceylon	...	...	4,000
Falklands	...	...	3,000
			8,000,000

The above figures must be taken as approximate only. They are also somewhat old and subject to change of time, but I deem it necessary to quote them to shew roughly the resources in animals of the various Powers which have participated in the late World War, and to preface a discussion on Wastage which to a very considerable extent is dependent on Resources.

The Tables will also serve to illustrate the important fact that the Allies during the late World War had the command of the majority of the useful animals of the World, and particularly of those that were essential for the draught purposes of Artillery and Transport so greatly in demand. In a war of such long duration and of such severity in respect to both human and animal participators, the practical command of the most useful war animals was a weapon in the hands of the Allies that went a long way towards the downfall of the enemy.

Honour therefore to those noble creatures, who, under circumstances indescribable in their awfulness at times, shared their lot with human beings, who suffered with a dumb obedience and helped to "win the war".

No Nation or Army has probably had more experience of animals in the Field than our own, and such experience gained in respect to the different classes of animals employed, should constitute us authorities in ways and means of avoiding wastage. The reports of Army Veterinary Service in our numerous campaigns in different countries and under varying circumstances form very absorbing reading. The achievements of animals are on occasion wonderful, but alas there are pages of unhappy disclosures where wastage was excessive to a degree, reflecting on our system of management and business acumen.

Broadly speaking there are two classes of wastage viz (a) Preventable wastage and (b) wastage by Act of God, inseparable from war. Though in this Article I shall treat of both, it is to the former that my thoughts are specially directed, and if any remarks of mine will serve as a means to keep this class ever in subjection, I shall not have written in vain.

## ***Wastage of Animals in War.***

To go into the subject therefore without further preamble, I shall divide my remarks under the following major headings:—

I. PREVENTION OF WASTAGE AND INEFFICIENCY.

II. CAUSE OF WASTAGE AND INEFFICIENCY.

III. WASTAGE PECULIAR TO INDIA.

### **I. PREVENTION OF WASTAGE AND INEFFICIENCY.**

“Causa sublata tollitur effectus” (Remove the cause and the effects will cease) is one of the first principles of Medical and Veterinary Science. It goes in double harness with the old hackneyed expression “Prevention is better than cure”. Both axioms are applicable to other spheres and circumstances than Medical or Veterinary Science. At the same time it is very easy to theorize on “preventable wastage” but it is a difficult proposition in war to define or draw the line between what is preventable and what is non-preventable wastage. Moreover, complaints or criticisms are quite valueless without proper remedies can be suggested.

With the above in view it perhaps would appear more correct to give an account of the causes of wastage before dealing with their prevention. It would seem to be putting the cart before the horse. But such causes, particularly in respect to diseases, are so varied and numerous and their recital so much attended with statistical figures that I have deemed it better to leave them to a later stage of the Article. Besides, the policy of prevention whenever it can be carried into effect, is or should be a first consideration.

For the purpose of discussing prevention, it will be convenient to group remarks under the under-mentioned sub-headings:—

(A).—Study of Resources and Remounting.

(B).—A properly organized Army Veterinary Service.

(C).—Knowledge of Animal Management.

(D).—Nature of work to be performed.

(E).—Evacuations,

**(A.)—Study of Resources and Remounting.**

The following round figures will convey a general idea of the colossal work put on our Remount Service during the late war, and the magnitude of the machinery that was necessary for remounting operations. Being so far away from records and having only a limited number of statistical figures by me, I have to fall back considerably on my memory, at least so far as the British Expeditionary Force, France, with which I was closely associated, is concerned.—

The pre-war strength of our Home Army in horses was approximately 23,000.

During the first twelve days of the war 165,000 horses were impressed.

The strength in horses of the Original Expeditionary Force, which mobilized and went to France, was 53,000.

Between August 1914 and the middle of 1918 roughly 450,000 horses were bought in the United Kingdom.

Over 700,000 animals were bought overseas in the United States and Canada on British account for various theatres of war. The United States Army itself when it mobilized required a large number of animals. To say nothing of what its troops in France possessed, it had at least 350,000 animals in training in Depots in view of being sent to France.

At one period of the war in France, the British Expeditionary Force possessed roughly 475,000 animals (of which 89,000 were mules). The total wastage from death, destruction and missing amounted to approximately 250,000 up to the end of December 1919, and about 25,000 sold to agriculturalists (prior to sales on demobilization). Roughly therefore during the four and a half years, 750,000 animals took part in the war in France, including British, Indian, Canadian, Australian, New Zealand and Portuguese Troops.

In August 1914, 193,319 horses were on the strength of the French Army, while 799,661 were required. By November 1917, 1,188,539 animals had been purchased in America and Spain to supply wastage.



### ***Wastage of Animals in War.***

The Belgium Government in addition to obtaining horses through British Remount Depots purchased in the Argentine.

Our demands for Mesopotamia and to a considerable extent for Egypt were met from India and Australia, remount operations from this side approximating 43,000 horses and 500 mules.

East Africa was supplied from South Africa.

The drain therefore of suitable animals for war purposes by the Allied Powers was stupendous, and it must be remembered that the demand chiefly related to animals of a draught type. In the United States for instance our purchases were twenty light draughts to one of other classes combined. The worlds supply of suitable stock is not inexhaustible. How demands were met is surprising, and rightly our Remount Services at Home and Abroad have reason to be proud of their achievements in the difficult task that was put upon them. Shakespeare through the mouth of one of his characters enjoins on us to put no trust in a horses health, and when we consider the vast number of animals that have been collected, purchased, moved by rail and sea, distributed as reinforcements to replace casualties (readers please think big and in hundreds of thousands), and their much greater proneness to disease than any human race, the wonder is that wastage has not been greater, and supply over so long a period impossible, in other words, that absolute exhaustion of resources was not reached.

Very much less fortunate and to her great regret as evidenced in Ludendorffs' Memoirs, was our principal enemy Germany. Her resources were exhausted; captured documents and orders revealed a burning desire to capture some of the beautiful horses of the English for her Transport. She was not enriched by animals of ours falling into her hands, which is a glorious page in the history of our animals in the war. And the imposing sight of the grand German Army in retreat with mixed teams of oxen and horses was a crown to her debacle. The majority of German animals taken by us were evacuated to our Lines of Communication and were sold for sausage meat.

Germany, though credited with over 4,000,000 horses in normal times, of which nearly 3,000,000 were in Prussia, was an importing country. She bought on an average 21,000 annually from Belgium, taking, it was said, the best of the Ardennes horses. She was also credited with taking 16,000 annually from Denmark, many of them for light draught work. Altogether her annual import returns shewed a little over 100,000. The best material was almost entirely appropriated to supply the demands of the military authorities, the remainder being doubtful for military purposes.

Austria-Hungary was fairly well stocked with horses but Hungary was essentially a light horse country, and Austria proper never afforded much of a field for remount operations.

Roumania, Bulgaria and Servia were all importing countries from Hungary for Army purposes.

After the disrapture of Russia, Germany was able to arrange a limited number of animals from the Ukraine but compared with other countries Russian animals are small: Polish horses, for instance, are chiefly of the riding type.

So that taking all in all, the resources of the Central Powers were bad. The efficiency of an Army very greatly depends on its horse supply, and Germany must have known, unless her vision was so clouded with arrogance or distorted through megalomania, that her feet were but clay. In a matter of horses she never had a dog's chance of successful issue in a protracted war of unusual severity even though the Schlieffen policy of over-running Belgium and a portion of Northern France in the early days was calculated to bring a certain number of useful animals into her net.

*Remounting in relation to Wastage.*

To know exactly where to go for supply, precisely the class of animal to buy, and suitable experienced purchasing officers are essential factors of Remounting if wastage and inefficiency are to be avoided.

We bought our experience very dearly during the War of two years and seven months in South Africa. During that War

### **Wastage of Animals in War.**

518,794 horses and 150,781 mules and donkeys were provided. 347,007 horses and 53,329 mules and donkeys were expended during the campaign and 13144 horses and 2816 mules and donkeys were lost on voyage. The total expenditure on horses, mules and donkeys, exclusive of freight, amounted to £15,339, 142. A Court of Enquiry, appointed by order of the Commander-in-Chief, was held in 1902 to enquire into the administration and organization of the Remount Department, the purchase of animals during that war, their transport overseas, and the causes of the enormous losses during the Campaign.

The salient facts of the findings of the Court and its Committees were briefly summarized as follows:—

- (a).—The normal duties of the Remount Department in peace were confined to transactions with dealers in the United Kingdom, and to meet additional requirements of horses on mobilization and to provide for wastage of a war, reliance was placed in a system of registration amounting to 14,000 animals.
- (b).—There was no system of obtaining and tabulating, in time of peace, information as to horse supplies of foreign countries with a view to the contingency of a great expansion in requirements.
- (c).—No steps were taken in view of the possibilities of a war in South Africa to ascertain what animals could be obtained from abroad until four months previous to the actual outbreak of hostilities when officers were sent to certain countries to enquire as to the supply of mules. Consequently when the conflict came and a great number of animals had to be procured from various countries, officers despatched for that purpose, for want of previous information and system, were much at the mercy of vendors both in a matter of price and quality of animals purchased.
- (d).—The Director-General of Remounts at that time could do little with the organization with which he was furnished in time of peace. His functions were

strictly limited and his staff even more so. It was inevitable that a Department with no provision for expansion when called on suddenly to extend its operations to a previously unconceived degree, should fail through lack of system.

(e).—The evidence confirmed the view that the chief cause of loss of horses was that they were brought from distant countries, submitted to a long and deteriorating sea voyage, when landed were sent into the field without time for recuperation, and there put to hard and continuous work on short rations.

(f).—In the early part of the war there was great pressure for horses but no well-thought-out system for the establishment of Base and Advanced Remount Depots in which animals could be held, exercised and prepared for issue.

(g).—There was also ill-provision of Veterinary Institutions to which sick and over-worked animals could be sent to recover. In the beginning, by reason of the inability to obtain fresh horses, those on charge of units were worked to the limit of their physical endurance and then were left to die on the veldt.

Truly a very sad state of affairs, and absolutely out of all keeping with the nature of a Britisher who loves his animals.

However, the Army at Home learned its lesson, and in a matter of Remount Intelligence the War Office in its Remount Department at the commencement of the late World War was in full possession of the remount resources of every country and had its machinery ready for operation. Looking at the question however purely in the light of reduced wastage and inefficiency of animals and furthermore in constructive criticism towards that end, I am inclined to think that the organization of Remount Service at Home is still susceptible of improvement. India is far ahead of it in that respect. If efficiency is to be maintained, a Remount Service should be a self-contained Corps

and with a policy admitting of a continuity of service and experience in the same manner as other Branches of the Army. The personnel of Remount Depots pre-war was a mixture of civilians and Army Service Corps soldiers: those in France (excepting the Indian Remount Depot) were borne on the strength of Army Service Corps so far as other ranks were concerned while the officers were retired officers or others specially entertained. I trust it will not be thought of me that I am actuated by any carping spirit in making these remarks but I am sure those who have had the experience of the late war will readily agree that for real efficiency all Administrative Services should be self-contained.

With the great tendency in freshly joined remounts to sickness of a communicable nature, i.e. respiratory sickness particularly, it is most necessary and important to exclude all sickness from Remount Depots. It is an impossible situation, for instance, to combine a Remount Depot and a Veterinary Hospital in war whether under purchasing arrangements, or in the Field. It is inviting disaster and placing a millstone round the neck of Remounting that will drown it. Nothing should be maintained in Remount Depots but animals fit to issue or reasonably so. Any unfit should be rigidly excluded and relegated to Veterinary Service whose function it is to handle this category, the Remount Service therefore being "Providers" and "Finishers", and the Veterinary Service "Menders". This broad line of policy viz. "Fit" and "Unfit" was laid down by the Director of Remounts and myself as Director of Veterinary Services from the very beginning of the campaign in France and was rigidly adhered to throughout. Obviously it was correct, and its success in avoiding wastage cannot be gainsaid.

The standard of efficiency and excellence in horses demanded by Units and Formations at the front was very high, appearing sometimes to be bordering on the ridiculous. If the article was not prime, back it came to Lines of Communication with dissertations on the subject of quality. I had great sympathy with Remount Service in this matter particularly as horses after a long

journey by train, or a dusty or rainy road journey, do not as a rule look their best, and at the instance of the Director of Remounts, I arranged with my representatives with Formations not to report on remounts until they had been at least three days with their units. The particularity was also reflected by Remount Depots on Veterinary Hospitals and the output from the latter to Remount Service had to be issues de luxe. It all sounds somewhat absurd when, as the war progressed, there were category "B" horses as well as men, but when one seriously considers it, the procedure was correct. We were able by all our means to keep down the total inefficiency of our Force to 12% in winter, and about 7% in summer, only 2% inefficiency existing at the Front.

Horses too, like ourselves, have their "days". They look fine creatures one day and awful brutes another. And apropos of remount purchasing I like to relate a story of a well known and experienced Remount Agent in Calcutta, who on walking round the lines of his purchases one day, stopped at a loose box containing a sorry looking object. "What horse is this" asked he. "One you bought from Mr. So and So a few days ago" was the reply. "You dont mean to tell me that I bought such a horse" was his comment. Further on in the line was a horse of noble presence, full of fire and indignity at rejection. "By Jove there's a beautiful horse" said the Remount Agent. "Yes, that is one of Mr. So and So which you rejected a few days ago" was the answer. A good many of us have been up against similar situations.

### **B. A properly organized Army Veterinary Service.**

In a previous Article published in the July issue of the Journal of the United Service Institution, I described the constitution of Army Veterinary Service in War, its function in relation to the preservation of animal health, and the procedure appertaining to it in its role of treatment of ineffectives and the reduction of wastage. It is therefore not necessary to refer to it again except to say that it forms practically the most important item in the matter now under review. I may further say that approval has now been accorded to the formation of a properly

organized Army Veterinary Corps in India which I am sanguine will not only render an efficient account of itself in the course of time, but will contribute greatly to its own cost by reducing loss and grading up efficiency of our animals, in India. It is a business proposition.

I intend also in a later paper to deal with an economic side to wastage of animals, so will defer further mention on this heading.

### **C. Knowledge of Animal Management.**

Too much stress cannot be laid on this very essential factor in the reduction of wastage. So important is it that I deem it necessary to devote a special paper to the subject, and to the role of Army Veterinary Service as an Instructional Agency. If possible, I will have it published in the same issue of the Journal as the present Article.

It was extraordinary in France how our original Divisions and Cavalry never lost the art and knowledge of management of Army animals. This was intuitively handed down like the good tone of our "Old Contemptibles" and as a part of their esprit de Corps. In speaking of Animal Management I do not wish it to be inferred that I allude to Horsemanship or Horsemastership in the sense of the fine art of riding, driving, breaking in, and study of the latest creations that cover the nether extremities of the faculty, but rather to the hygiene of the animal that preserves his health and adds to his utility. It is all a matter of instruction and it forms a part of the curriculum of a soldier's training in common with other items. What knowledge begins, association fosters, and the end is the love of comrades in arms, reciprocated and enduring. I recall an incident—it is only one of many—of a visit to an "Old Contemptible" battalion after three years of War of the severest. On asking if the battalion had any of its original horses it possessed when I knew it in Ireland in 1910—13, the officer, with the greater pleasure and pride, brought out the original pair of wagon horses and the pair of machine gun cobs. I had hit the happy theme in one act. Such is animal management. Where are the Victory Medals?

*Horse shows.*

To the minds of a good many people, Horse Shows in war would appear to savour of frivolity in the face of a grave situation, but from an instructional point of view as object lessons they are to be recommended. They also afford pleasure and relaxation to the individual and a break from trying circumstances. Most Divisions in the B. E. F. France, had their Shows, and the prize winners took part in Corps and Army Shows. Perhaps too much concentration on individual horses or teams was displayed and a most useful form would relate to whole units. The interest nevertheless, which they created was all to the good of the animals.

However there is another sight to the picture, and which I personally think is an equally good and perhaps a better object lesson. This is to be seen in Veterinary Hospitals on Lines of Communication, and is represented by the flotsam and jetsam of war. If it is necessary to shew all and sundry what animals *should* be like by means of horse shows in war, it is all the more expedient that those charged with the care of animals *should* witness what they *should not* be like, and what wastage really means. For this reason Classes of Animal Management were held at Veterinary Hospitals on Lines of Communication for young officers and non-commissioned officers, and to which I will refer in the paper entitled "Army Veterinary Service as an Instructional Agency".

*Watering and water Discipline.*

There is probably nothing that knocks animals out so rapidly as lack of water, or water so impure that animals refuse it. It is essential that water arrangements both for men and animals, and a proper water discipline, should be specially instituted. I remember an Army Commander in France taking me to a map in his room and specially drawing my attention to the portion of country over which a large offensive was to be made. It was the waterless area towards Bapaume. He remarked "You are going to have a bad time," and his words proved true. Water supply is a difficult and yet a very important opposition where large bodies of troops



### ***Wastage of Animals in War.***

are concentrated. Picture the concentration of 150,000 to 190,000 animals in a radius of a few miles and the prospect of a successful advance over a country removed from water in the summer season. French village ponds in occupied areas were of no value. They were the cause of sewage poisoning in some instances. So particular were Corps in certain areas that the maps of Brigadier-Generals Administration were marked with water points and even water troughs for animals. But for this wise provision in their areas our wastage would have been much heavier. Animals travelling by train, and especially sick horses under evacuation had their own self-contained watering arrangements. Water parades, time schedules, and the presence of an officer at watering parades are part of the requisite care of animals in the Field. It is a feature of animal management in India, and in frontier expeditions of that country, which requires putting on a better basis and particularly with regard to the camel. The remedy lies in the special concentration of thought on the subject and a discountenance of the "Kuch purwa nahi" haphazard methods that are apt to prevail.

#### ***Foods and Feedings.***

It is said that an Army fights on its stomach. It is quite true. There is no physical endurance without a liberal supply of food. Morale goes to pieces on an empty stomach. I am convinced that one of our best items of propaganda was the display of comestibles, and the prices at which they could be obtained, in the Expeditionary Force Canteens in France when the Germans pushed our troops back in the Somme Area in March 1918. It was an eye-opener to an enemy who had been imbued with tales that England was being brought to her knees through their "unrestricted submarine warfare."

What is true of men is equally true of animals, the only difference being that while the one can voice his complaints and objections, the other must suffer in dumb obedience. All the more reason therefore that the wants of the latter should receive the utmost consideration.

No animal can perform hard work, and the severest of all work which war necessitates, without the most particular attention is paid to his food and feeding in all its aspects of quantity, quality, periods and appliances. The records of Debility and Exhaustion, which I will presently show, bring home to us most forcibly the necessity that the most profound care should be given to the provision of food for our animals and its administration to them. Though there are contributory and concomitant causes of Exhaustion and Debility, such as lack of or insufficiency of water, climatic influences, excessive work or undue exertion, the chief factor is insufficiency of food. Starvation is an ugly word to read in reports.

Food supply in war, and its transport, is a difficult proposition. The pound of meat and pound of bread or biscuit for the man is an easier matter than the ten or twelve pounds of grain and ten pounds of forage for the horse, and these latter bulky amounts are opposed to successful ventures of offensive warfare. It is not always possible to tap the resources of a country or area through which troops operate. There comes a time when even that is exhausted, and everything has to be sent up from the Base or from Lines of Communication Depots. Long Lines of Communication by road such as we have experienced in India, in Somaliland, in the Sudan etc. represent a tough problem to the Military Authorities, much more so than in countries well endowed with railways. Hence it is that animals may suffer by failure of supply.

War is always costly in food supply. The pre-war cost of a daily horse ration in the Army was from  $1/3$  to  $1/6$ . In the last year of the war in France it was  $5/2$ , and at the very end, if my memory serves me right, it either reached or was likely to reach 7/- per ration. Substitution diets and equivalents had constantly to be thought of and adopted. The foresight shewn, and the manner in which the supply of food-stuffs to our animals was effected during the late World's War, was nothing short of wonderful.

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I mention the above to point the necessity for economy which has a great bearing on wastage of animal life. Waste not, want not! Economy is twofold, the first relating to Supply Services in substitution diets, and the power to issue equivalents, as has been already alluded to whenever circumstances demand, the second relating more directly to the animal itself. The latter is where the Commanding Officer, the chief instrument of horse-mastership and animal management in the prevention of wastage, comes in. What avails supply if the ration does not reach the animal's stomach. Therefore it is that the commonest rules and routine procedure of stable management must be observed. No excuse whatever can or should be accepted for the want of provision of nose-bags, haynets and feeding cloths the plates as it were of creatures who cannot make expedients for themselves. Wind has a habit of blowing hay out of the reach of animals tied to a picket line, grain placed on the ground in wet weather is trodden into the mud and wasted. There is shocking waste of bhoosa in India. Consider the transport necessary to get this article to animals on services.

- It is an innutritious diet at its best, and I think the time has now come when by a combination of some other more highly nutritious "roughage" (e.g. berseem, shaftal, luceraoaccess leguminous fodder) with bhoosa in bale, a more suitable service ration should be devised. I am certain it would be favourable to animals, and represent economy in transport.

Time to eat is an element that has to be reckoned with on service. This, or rather the lack of it, was one of the reasons why our beautiful big heavy draught English horses, requiring a bulky forage ration, went to pieces in France as I will shew in a subsequent paper. Military animals are not like dogs that can bolt their food with impunity. It takes horses five minutes at least to eat a pound of grain and fifteen minutes to eat a pound of hay. Bullocks and camels must have time to ruminate: it is part of their alimentary and digestive procedure, and as a rule they sit down to it.

Forage rations can at times be supplemented by grazing, and advantage should always be taken where it is possible or when time or season permits. A certain amount of grazing was obtainable in the devastated areas in France. Chaffing of hay and straw was resorted to as an economical procedure. The forage rations of French Army horses included straw, that uncaten going for bedding. The policy of the British Army was to ensure by chaffing that straw went into the belly of the animal not under it. We also used a considerable amount of linseed and other cakes (100 tons per month) and locust beans, both articles chiefly for the sick and debilitated animals on Lines of Communication. Human beings and to wit prisoners working in Veterinary Hospitals of Lines of Communication were quite partial to the sweet sugary locust beans (pods) whenever they were available.

Lastly I may mention the green crops that were grown for animals in the vicinity of stationary units on Lines of Communication in France. If the war had lasted another year, the majority of Veterinary Hospitals would have been self-supporting, by intensive cultivation, in green crops (rye, vetches, Indian corn etc.,) and roots for more or less the whole year, arrangements having been made to lease up to as much as 100 acres for the purpose by some Hospitals. It was a good project to meet the ravages of wastage in war.

#### *Clipping and Clothing.*

So much controversy has centred round the subject of clipping in relation to wastage that I deem it necessary to refer to it briefly. The controversy arose out of the heavy losses occasioned during the Arras Offensive of the first fortnight of April 1917, the severity of the weather from snow storms and cold being quite unprecedented for that time of the year. In view of prevention of mange, that bugbear of active service and winter scourge, the policy of clipping had been adopted, and the Veterinary Service was greatly blamed for its advocacy. In the storm of controversy, an unfortunate enforced reduction of the grain ration of all animals for some time previously, and continued at

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the actual conflict of battle, was lost sight of or was unknown to those who rose in condemnation. If the hygiene of the body in respect to cleanliness and freedom from mange parasites could have been effected by strict attention to stable duties there would have been no necessity for clipping, but think of the mud of winter in Northern France and the almost impossible and heart-breaking task to keep animals clean that are mired to the very neck. The official photographer in France was specially asked to pourtray circumstances under which animals laboured.

However so far as clipping and prevention of mange in relation to it is concerned, the policy adopted the following year was to clip early, no clipping to be done after the middle of November. Coats would then be grown sufficiently to afford warmth before the real cold weather, and the happy hunting grounds of mange parasites, viz. dirty long coats, laid waste for a certain portion of the winter.

And it is interesting to relate that in the sub-world to which I have referred there were battles, and it was left to Veterinary Service either to keep the "ring" or destroy the battle fields. I do not think we adopted the role of Neutrals. But there were combats to the death between the Lice, clad in their chitinous armour, and the Mange parasites, perfect in trench warfare and subterranean passages. One year the tribe *Haematopinus* (lice) with its more insinuating ally *Trichodectes* won the day, but the following year the "Digger" (*Sarcoptes*), the expert chap, carried all before him, but he succumbed to Calcium Sulphide and Gas.

Of course clipped animals must be clothed, indeed in any case clothing is necessary in winter season, alike to keep out cold, wind, and wet. The string jhool of several designs cannot be beaten: its cleansing and disinfection are matters of importance where disease has to be prevented.

#### *Acclimatisation.*

Acclimatisation of animals is a matter which in war has not received the attention in days gone by that it deserves, excepting perhaps in India. The experience during the South African War, and to which I have referred, was an object lesson to us

in this respect. We have been apt to look upon horses as machines but forgetful of compensating balances. No one would dream of putting an Australian horse from a Southern Zone immediately into a war on the Northern frontiers of India under conditions of reverse season. They must have a little time to get on their legs, and over little sicknesses incidental to changed circumstances and surroundings. The more lymphatic or lethargic the animal the more prone he is to attack from disease.

In the purchase of heavy draught horses during the late war, it was found that they invariably went sick after removal from their accustomed habitat, and a regular system of temperature taking was instituted, which was extended to their arrival in a theatre of war and before issue to units. A policy of three weeks residence in a Remount Depot in France was adopted for all overseas animals before issue, and accommodation to admit of this was arranged accordingly. The consequence was that extremely little respiratory sickness existed at the front.

*Remount Training Depots and Reserve Depots.*

The issue of animals trained for the purpose required of them in war is a most important factor in the limitation of wastage. It is not sufficient to buy them as broken animals in an open market and ship them straight to a theatre of war. Some organization must exist where they can be proved and rendered suitable. It would appear to me that India is well advanced in this necessary procedure, and the Remount Training Depots provide more than a useful purpose.

**D. Nature of work to be performed.**

As briefly indicated in the previous paragraph, animals should start fit and trained for their particular job. It is up to the Commanding Officer of their respective units to look after their interests subsequently. He is their philosopher and guide.

A very bright feature of the late war was the splendid manner in which Infantry looked after their horses, and it is certainly a matter deserving of the highest commendation and record in the annals of our Infantry in war. Apart from that

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spirit of faithfulness and bon camaraderie which battalions showed to their animals, their success was a matter of organization and lay in the appointment of Battalion Transport Officer. I wish that Artillery, in which Arm the heaviest work and greatest wastage lay, could have been similarly provided. Even a Brigade Transport Officer of Artillery, an appointment part of Artillery organization, to watch the interests of horses in their wagon lines while Artillery Officers were forward with their guns, would have been much better than the "horsemasters" and "wagon line officers", who were appointed, and who were nobodys' children.

The greatest wastage in France was in the light draught horses of Artillery. The work of getting ammunition up to gun emplacements over shell pitted ground and through seas of mud at dead of night was of the severest possible description, and the situation was complicated by lack of fit remounts of that class to keep pace with wastage. Bad rainy weather always was succeeded by an aftermath of Debility evacuations, in Artillery units particularly. The churned up mud of Flanders, the shell holes filled with liquid mud every few steps, into which animals under load dropped exhausted and probably to drown, was a picture that required to be seen to be realised to its full degree of awfulness.

The French Army used a large number of donkeys for carrying ammunition. They were driven in lots of about twenty, and they picked their way across country, skirting the edges of the shell holes.

The war in France was not a Cavalry one but when Cavalry in force participated in Offensive, casualties—battle casualties chiefly—were heavy. In one offensive the casualties for a week amounted to 10% of strength but there was 1000 % of gallantry that far outweighed the loss. It is War when Cavalry begins to move, and you may laugh at prevention. And when behind the movement there are the pent-up feelings of several months inactivity, "I reckon there's going to be some show" (N. B.

This is supposed to be a treatise on prevention of wastage and inefficiency).

I close the chapter with reference to Transport. In France nothing could have exceeded the high state of efficiency of animals generally in Army Service Corps units of Divisional Trains, Reserve Parks and Auxiliary Transport Companies. They certainly were not exposed to the hard lot of Artillery horses, but they were a real good class of well selected animals and the organization of A.S.C. in personnel left nothing remaining for their care. The wastage, excepting in some of the Reserve Parks in the early days of the war, was phenomenally small, and a large number served through the whole period of the war returning to England at the end of time.

The wastage in other wars, including some of the Expeditions on the Indian Frontiers, chiefly relates to Transport, and putting aside the dire contagious diseases which lay low so many of the various breeds of animals employed on Transport Service, it is a certain fact that defective system and inadequacy of personnel to supervise animals has led to wastage that can only be described as distressing. I shall refer to this more fully in a subsequent chapter dealing with the causes of wastage.

### **(E.) Evacuations.**

I believe in figures and percentages. They are necessary for the control of wastage, and as a guide for calculating and adjusting replacements. A General Officer Commanding a Division, Corps, or Army, should always know by a simple statement how his inefficiency stands week by week, and if possible, he should be made acquainted with the inefficiency of other Divisions, Corps or Armies, in comparison.

There is no point in maintaining inefficient animals at the Front. They should be got rid of and replaced, fighting units being kept up to their fighting strength as much as possible. This has now been thoroughly realized in the British Army, and all Formations in the Field have organized Veterinary units to effect removal, and Remount Service conversely has machinery to effect replacement by fit animals.



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By this means efficiency is not only maintained but wastage is curtailed. Animals get a chance of recuperation and speedy cure when such is feasible or economically sound. Their vitality and utility are not hopelessly destroyed, and it is good business both for the animal and the State.

Organized and systematic evacuation plays a great role in the prevention of wastage, and I am sanguine that, other things being equal, through this procedure the dark pages of utter waste of animal life and treasure will be closed for ever in the history of our Armies. Other nations have taken copy of methods inaugurated by our Armies in the Field, fully realizing the advantages which such methods carry in their train. We are proud of of being pioneers.

### **II. CAUSES OF WASTAGE AND INEFFICIENCY.**

War pre-supposes that casualties relate chiefly to the effect of gunfire. This is not so with animals. Though, as I will presently show, a considerable number of actual battle casualties occurred in France, the majority of casualties were from other causes. It is the same in all theatres of war. Incapacity, the result of hard work and insufficiency of food, together with a long list of diseases of a communicable or specific nature usually go to form the Veterinary wastage of war.

In my recital of them I shall have to quote a few statistics, and some of them are sorry reading, but it is necessary to see the black cloud to appreciate the silver lining, and precept must be pointed by example, whether good or bad, if progress towards the goal of efficiency is to be achieved.

I will group remarks of this chapter under the following headings:—

A.—Debility and Exhaustion.

B.—Battle Casualties.

C.—Accidental Injuries.

D.—Contagious and Specific Diseases.

reserving a special chapter for diseases that by reason of the classes of animals employed, are more or less peculiar to India.

**A. Debility and Exhaustion.**

The history of every campaign unfortunately teems with the impoverished and exhausted condition to which animals are at times reduced. Much of it is inseparable from the hard work, exposure and other issues of war, but it is a regrettable fact that a good deal of it is avoidable, and it represents an accompaniment of war that is discreditable and open on occasion to storms of criticism as acts of cruelty. Poverty and its accompanying exhaustion is the hall mark or evidence of indifferent supervision and care of animals, or a bad system in respect to their management. It is always in inverse ratio to the standard of animal management attained. There is no getting away from this fact, and until such is realized to the full, this class of wastage will always figure very largely in the annals of our Army. To keep it down, an educative policy in practical animal management is absolutely indispensable both in peace and war; moreover history points to the necessity for the enforcement of stern disciplinary measures when neglect is apparent.

To go back into now ancient days, a perusal of the old Kabul papers is of absorbing interest, revealing dark pages in the history of animals that are happily past in modern times. In those days, systems were water tight, and the right hand was in ignorance of what the left hand did. Transport arrangements were a thing apart from the rest of the Army, and the establishment of Veterinary Hospitals was left to the initiative of a limited number of British Veterinary Surgeons, who for extra duty performed with the Transport Department received the sum of Rs. 75 per month as against a Transport Officer Rs. 200 per month.

The animals of Transport were partly Government and partly hired, and judging from the report of the Inspecting Veterinary Officer, the whole system of organization and conduct of affairs must have been quite unique. In his tour inspection report he alludes to evident want of inspection whereby hired animals were sent from Kohat up the line by hundreds with no arrangements for the supply of food, that being left entirely to the owners; further on at Thal where he wished to establish a Veterinary

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Hospital he found utter confusion, so much so that he could not make a proper inspection of animals which in most instances were not even tied up in lines. There were but few animals even in fair conditon, and sore-backs were counted by the hundred, the sores being smeared over with mud, cow-dung, etc. At Ali Khel he found debilitated Foot and Mouth Disease affected slaughter cattle being sold by public auction to the inhabitants of surrounding villages. At Togh where a depot for camels had been formed, though the officer in charge was using every endeavour by grazing, feeding on grain and placing animals under shelter, his camels, already debilitated, were carried off by pulmonary and dysenteric disease to the extent of 40 % Government and 33 % hired in 58 days. He describes an inspection of 5754 baggage animals comprising mules, ponies, donkeys, camels and oxen, and found that 2326 or 40 % were physically unfit for the work required of them, the majority being either under four years or too old, pointing to the necessity for exercise of more care in selection. He characterizes the camel as a utter failure on two campaigns but speaks well of the mule, alluding specially to his marvellous digestive powers.

I am sorry to allude to the above, but it shews what bad organisation and arrangements lead to. The records of subsequent frontier campaigns in India, excepting in the matter of Contagious and specific disease, are much pleasanter reading, and the grading up of an organised system is gradually producing good results. Much, however, still remains to be done in matters of supervision and rational care. I quite disagree with the Inspecting Veterinary Officer of the Kurram and Kyber of 1879-80 with regard to the camel being an utter failure. With enlightened ideas of his management and better control of his diseases, both of which are now in progress, he is going to prove a most useful member of our Indian Transport. Under a system of stall feeding he has merited great praise during the recent Waziristan Expedition. Why should any animal on service be expected to forage for itself? Surely it is adding insult to injury. The basis of camel feeding in India up to recently was grazing, with stall

feeding in lieu. The policy has been reversed, and thousands of camels will be saved by the reversion. I will have more to say on the camel later.

In Waziristan during the recent Expedition our inefficiency stood at :—

Horses and ponies.....	7. 5 %
Mules.....	2. 6 %
Camels.....	11 %
Bullocks.....	2. 4 %

But for the unfortunate Mange which is so prevalent in camels in India, and another disease by name Jhooling, the camel inefficiency would have been less; but Conditions are however being gradually improved.

Considerable loss from Debility has been experienced in camels in Eastern Persia and inefficiency ran at 25 %. Apart from hard work and long distances, without question a deficient food supply and defective management were the real reasons for the loss.

Of all the sad pages in the history of camels employed by our Armies nothing can surpass that of the Desert Column in the Nile Expedition of 1884-85. Between the 30th December 1884 and 25th March 1885 i. e. in barely three months, this column lost 1850 in the Bayuda Desert and 448 at Korti out of a total of 4050 camels, or 56. 7 %. Though some were killed in action the chief cause of mortality was forced and long-continued marching with insufficiency of food and water. The first column averaged 30 miles per day, the second column 25 miles per day. Between Gakdal and Gubat, a journey of six days, the allowance of grain amounted to under two pounds per camel daily, and no water could be given during that period. Grazing was not possible. On the return journey the animals had only a few loads of green dhourra stalks and what grass could be collected to subsist on. A good many of the camels were only four years old, and a curious statement of the covering report of the Principal Veterinary Officer to the Forces, War Office, is to the effect that purchasing officers (Egyptians)

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knew so little of this class of animal that some of them were not able to distinguish the sex, to say nothing of their age, or to judge fitness for the work required. A Brigade Order was published previous to the march that camels should only be watered every third day to accustom them to the privations of the march and that they should have their fill before starting. This was not judicious treatment, especially when it was known that the animals would have little else than dry food for the journey. Camels are not salamanders, and they require as much water as any other ruminant to maintain health and strength. The Veterinary Officer accompanying the column describes one instance of camels being 40 hours under load; one company had one man to every six or seven camels and these consisted of Egyptian soldiers taken out of boats which had just come up the river. Truly a most lamentable state of bad organization and arrangement, which it is hoped will never see the light of day again.

On the other hand, and at the same time, was the most wonderful performance of the 19th Hussars (155 strong) mounted on Syrian ponies, an example of the most efficient care of animals almost on record. With an average daily ration of 5 to 6 lbs. of grain and two gallons of water for 10 days, they marched 31 miles daily. At the first advance on Matammeh. they marched to the Nile without having received a drop of water for 55 hours and only 1 lb. of grain. During their halt at Gubat from 20th January to 14th February, they were fed on 10 lbs. dhourra stalk daily and on their return journey to Korti the first 75 miles of the journey was performed on 4 lbs. grain and 3 gallons of water. The horses were allowed to graze on every possible occasion on the grass of the Bayuda Desert, but it was very dry and they ate little. Out of the 155 animals 19 died or were destroyed for Debility or Exhaustion, 5 from other causes and 20 were killed in action between 8th January and 8th March.

The wastage in the South African War has already been alluded to, and by far the greatest amount was due to Debility

and exhaustion, the war being very considerably one of movement and trekking. It simply swallowed up animals, and replacements, being so unfit, never had much of a chance from the outset. North American animals though good were the victims of operations in a country of reverse seasons: Argentines were grass fed animals in their own country, and missing their beautiful alfalfa and being unaccustomed to grain and feeding out of a nose-bag, quickly went to pieces: Hungarian horses were, and are at the best, "flatcatchers" and also are grass fed in their own country: Russian cobs for mounted infantry purposes, at least those from the Urals, being a tough lot, weathered the storm: the London bus horse, full of good hard English keep, rendered a good account of himself: but the native of the country was the hardiest of all. Truly it was the survival of the fittest. I call to mind a reconnaissance of Plumers Force, when, mounted on South African ponies 70 miles were covered in 26 hours and not a single animal dropped out, and this during the season of "Horse-sickness". Also after over a year of hard campaigning, 30 % of the original ponies of his Rhodesia Regiment were handed back to the Remount Department when the regiment was broken up. It is an example of the fitness of animals that are required for the hard usages of a war of movement.

To chronicle in detail the wastage under this heading which has existed in our numerous campaigns, and the causes which have led up to it, in itself would fill a book. There is admittedly a large proportion of Debility in active warfare which nothing can prevent. Animals have their nervous systems as well as ourselves, and there are delicately constituted animals which no horse-master can keep in condition, and which from necessity must find their way into the ranks of the best horsed army in the world. Moreover there are times when the military situation absolutely prohibits the bestowal of that due amount of attention in watering, feeding, and general care, which is so essential to the well being of the animal.

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Let us now see what happened in the greatest of all wars, at least in the Western Theatre in France, where long forced marches were of rare occurrence, but where battle in all its fury, exposure, terrific toll, and at times reduced ration, existed.

The Somme Offensive of 1916 left us by the December of that year with 16,074 Debility (poor condition) animals under treatment in Veterinary Hospitals and Convalescent Horse Depots. (*N. B.*—Our policy, as previously explained, was early evacuation as far as the situation admitted, and Convalescent Horse Depots are essentially for the recuperation of animals in impoverished condition). Of this number, 3,386 were riding horses, 9,211 were light draught horses, 2,825 were heavy draught horses, 248 were cobs and 404 were mules. The strength of the Force was then 354,217 horses and 62,914 mules, the percentage Debility (poor condition) therefore being 4.54% for horses and .64 for mules. The figures illustrate finely the wonderful resistant power of the mule and he was equally good at recuperation. At the same time it is evident that when the working ration is reduced, the small animal will continue effective when the larger animal fails. The light draught mule 14.3 to 15.2 received the same ration as a light draught horse. The cob was conspicuous by his absence from Veterinary institutions at all times.

In 1917, during the first fortnight of February, operations were at a stand still, and though the weather was cold, the wastage from Debility was low, only 1,678 cases for the two weeks being admitted. From the 15th February to the 31st March the weather increased in severity, there was more movement of troops and a corresponding increase in the amount of Debility, 3,639 being recorded for the two last weeks of February, and 9,427 for the month of March. During April and particularly during the first two weeks (including Easter week) the bitterest weather conditions prevailed. Unfortunately too, an enforced reduction of ration had for sometime previously existed, and with 195,000 animals engaged in the very arduous offensive operations in front of Arras at that time, the toll of

Debility and Exhaustion rose to an unprecedented degree. 20,319 were admitted during the month.

With the advent of better weather, diminution of work, and an augmented ration, the admission during May and June dropped to 3,032 and 1,253 respectively.

This represented the period of our most serious loss from Exhaustion and Debility. Conditions of service at the Front and the strain to which animals were subjected, were practically undescrivable, and not the least of our enemies was the appalling weather which prevailed during that Easter Time, as if the God of all Hosts rose up in rebellion against the very name of War perpetrated by Man.

We found also at that time on making post-mortem examinations of animals dying from debilitating and exhausting conditions, that Gastro-enteritis was common, a severe gastric ulceration sometimes existing, similar in a marked degree to the mouth lesions of Contagious Vesicular Stomatitis which appeared amongst our animals in the early days of 1917, the intensity of which was increased rather than diminished by the severe cold of the winter and spring. In one month alone we had 2,596 cases of this disease under treatment in isolation in Veterinary Hospitals. Its gravity lies in its extreme contagiousness and the loss that occurs in the condition of animals from their inability to feed. It was only through the greatest vigilance on the part of Veterinary Officers, the isolation of cases, and separate watering arrangements by means of water buckets and improvised small watering troughs made from mens' ground sheets that the Front could be kept clear, and there is no doubt that this very ugly disease played a considerable part in the wastage of the spring of 1917 from Debility.

*Age in relation to wastage.*

The rule of the Army used to be that only horses between six and twelve years were to be sent on service, and fifteen years and over was the age for casting. As the late war progressed, extending into over four years, animals naturally exceeded the accepted useful ages, but it is a point to be noted that animals



of advanced years stood the campaign wonderfully well, and the maximum age limit of 12 years can certainly be expunged in favour of an open question. Some of the old trained horses of Cavalry have a remarkable record, and have stamped themselves as real tough warriors. Record was kept of the ages of all horses evacuated, and it was found that this ran about 11·5 %, gradually coming down in 1918 to under 10 %, for animals 15 years and over.

### **B. Battle Casualties.**

In campaigns previous to the late war, excepting perhaps in Cavalry charges, the casualties in animals from actual gunfire was in small ratio to other causes of wastage. I therefore pass them by, and come immediately to modern times, and a consideration entirely of the wastage of the principal theatre in the recent Great War.

During the first two years of the campaign in France, Battle casualties were extraordinarily low. This was largely attributable to the stationary nature of the warfare, and the lesser power of Artillery and other elements of destruction.

With the advent of offensive operations of the summer of 1916, the enormous increase of Artillery, and the development of bombs and gas, casualties correspondingly increased, and loss became heavy.

The following table, giving periods and chief operations, will aptly shew what a struggle between Great Powers under modern circumstances of war really means:—

Period.	Chief Operations.	Gas.		Gunshot wounds including Bombs.		Total.
		Killed.	Wounded.	Killed.	Wounded.	
1st July to 31st Dec. 1916 .. ..	Embracing the battles of the Somme and Ancre .. ..	33	352	3,941	6,063	10,389
January, Feb'y. and March 1917 ..	Not marked by severe fighting .. ..	—	—	771	1,260	2,031
April 1917 ..	Operations in front of Arras .. ..	—	—	2,070	2,555	4,625

Periods.	Chief Operations.	Gas.		Gunshot wounds including Bombs.		Total.
		Killed	Wounded.	Killed	Wounded.	
1st May to 27th October 1917 ..	Messines and operations in Belgium .. ..	68	1,138	10,590	22,258	34,054
28th October 1917 to 16th March 1918 ..	Operations at Cambrai.	6	33	4,096	8,869	13,004
17th March 1918 to 14th July 1918 ..	Period of great hostile offensive .. ..	78	451	14,122	13,154	27,805
15th July 1918 to 11th Nov. 1918 ..	Period of great British offensive .. ..	26	246	22,500	23,251	46,023
	Total ..	211	2,220	58,090	77,410	137,931

By the careful selection of horse lines and splitting up animals into small groups, Unit Commanders were able to minimise the effect of hostile fire very considerably.

Aerial bombs were responsible for a large proportion of the Battle Casualties, and their effect was combated with a considerable measure of success by the erection of mud walls, five feet high, round horse lines and stables, and by anti-bomb traverses within stables. A bomb in its action explodes low, and many broken legs and abdominal injuries were saved by anti-bomb walls and traverses. An accurate account of Bomb Casualties as against Gunshot was kept, and it formed a very good guide as to German aerial activity and strength, and to our aerial supremacy. From records of casualties the zenith of German aerial power would appear to have been reached in August and September 1917 when bomb casualties in animals amounted to about 400 per week, and though they left the Front considerably alone and gave the back areas a dusting in May 1918, the casualties were week by week on the wane, and in October 1918 before the Armistice they only amounted to about sixteen per week. It was a singular fact that with the exception of one instance when the crow was hit instead of the pigeon, Veterinary Hospitals on Lines of Communication received no damage from enemy bombs.

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The introduction of Gas Warfare was met by the provision of horse respirators, but such provision was more costly than the loss sustained. It is more important for the men to adjust their own respirators than those of the horses, and by the time the latter is effected, damage may be done to the animals. Animals are more resistant to gas than men, but in any case the best policy is to clear out of the gas area. Respirators are of course of no value against the mustard gas. Avoidance of pools of water (blistering of lips from drinking) and of traversing land on which it was noticed (blistering of heels and legs) were precautions taken.

### **C. Accidental Injuries.**

Under this heading are included wounds other than gunshot, kicks, contusions, fractures, sprains, rope-galls, saddle galls, harness galls, and lameness from various causes. Treated as a class they are very largely preventable, and their limitation is in direct relation to the knowledge and attention displayed by Unit Commanders and others to whom animals are entrusted. It is very satisfactory to record that during no period of the war in France, with the exception perhaps of the inefficiency resulting from "picked up nail" to which I will specifically allude, did this class of wastage present any serious proportion, and I think the small amount of preventable injury there met with reflects very creditably on the general animal management of the Army. Certainly the simple knowledge which has been gained in our various schools and classes have borne good fruit.

#### *Soreback.*

In days gone by, the inefficiency on campaign from sore-backs, both in Cavalry and in Transport, was dreadful, forming, with the exception of contagious disease, the chief item of wastage and inefficiency. The history of the majority of frontier expeditions in India reeks of sore-back in Transport. In the Egyptian Campaign of 1882, out of the total of 1982 horses, though there was comparatively little marching, there were 517 cases of sore-back of which 21 had to be destroyed. In two months one British Cavalry Regiment had 76 sore-backs

and in another there were 89 in one month. Reports of sore-back in camels during the Nile Expedition of 1884-85 were very pitiable. There was 8% of inefficiency from this cause on assembly at Assouan, a very bad start, and the subsequent tale is one of saddles literally sitting into animals' backs, bones exposed, maggots, saddles unremoved for days, a dreadful picture of wastage.

In the Somaliland Field Force of 1903-04 the sore-backs from the native substitute for a saddle, viz. "Herio" (a series of mats) was appalling.

Even in present times there is a considerable amount of sore-back in mule and pony Pack Transport and in Camel Corps on Field Service in India.

Wherever there is intelligent supervision, there will be a minimum of injury. It is the duty of Commanding Officers to inspect the backs of their animals daily as a routine, the cause of any little rub being defined. The panel of the saddle is the book to read, and every gall has a definite cause which, with the exercise of intelligence, can be remedied. At the same time a suitable palanquin or camel saddle requires to be devised. The camel is living in anticipation of some fertile sympathetic brain producing the necessary blessing.

Perhaps no greater factor in the reduction of saddle and harness galls exists than the small War Office publication "Animal Management." All the seats of galling are explicitly shewn in the chapter relating to Saddles and sore-backs, and it will repay study.

#### *Rope-gall.*

I particularly mention this injury in view of systems of picketing animals. Invariably injury is to the hind heels, and it is caused by the animal getting entangled in the slack of the head-rope attached to picket line. The injury was most infrequent in France because the picket rope was stretched between wagons or attached to posts. In other words the picket rope was breast high, the slack of the rope avoided, and fear of entanglement and gall minimised. There was no necessity for

hind shackling under this method, and as a rule animals learn to stand quietly.

In India, the common system of picketing, except in Artillery, is a ground rope to which animals are attached by their head ropes, and to keep them straight hind shackles are necessitated. The weight of these shackles and particularly the iron chains of transport in the aggregate is enormous, and represents an addition to loads either on the animal or in carts which could easily be abolished. Even in Peace, in stables in India the system of "Agari-pichari" continues; it could stand modification with advantage.

#### *Lameness.*

The amount of lameness from sprains, bone diseases such as spavin, ringbone, and arthritis, during the war in France and Belgium was extra-ordinarily small. The Army was maintained as sound as possible, any unserviceable animals either being cast and sold to agriculturalists or for food, or were utilised for the slower and less arduous work on Lines of Communication. The latter category was designated V. B. (indicating Veterinary-Base).

Mules as a rule are wonderfully sound and it is surprising how well they do without shoes. A Mountain Artillery Commander would scoff at the very idea of his mules being shod. Unshod they have sure foot-hold. The pack and draught mules of Transport Corps work unshod with splendid results. Even ponies can do at least without hind shoes. It, however, all depends on weather. In wet weather there is greater maceration of horn and so in France the draught mules were shod.

On the frontier in Waziristan from work along the stony river beds camels have suffered considerably from sore-feet, and various protective expedients have been tried. Camels parked on stony ground also suffer from bruises and wounds of the chest-pad and without care is exercised in the selection of camping grounds a good deal of inefficiency and loss (for such cases are difficult to cure) is occasioned thereby.

*Picked up Nail.*

A curious form of inefficiency which loomed very largely in the returns of the B. E. F., France, was what was termed "Picked-up-nail," and all sorts of expedients, amusing and otherwise, were adopted for its prevention. Nails appear to have a peculiar attraction for horses' feet, and the nuisance was not confined to nails, for an occasional live cartridge would be found. There was no record of any bird's nests such as rumour attached to the tails of certain horses purchased during the Zulu War. However, joking apart, from the winter of 1915-16 the occurrence amounted to 400 per week, in spite of Routine Orders (which are apt to go in at one ear and out at the other), beautiful attractive red boxes with the word "Nails" printed in pearly white stuck up on the walls of villages, posters of photographs of nails with witty remarks lying with the attractive boxes on the walls, and "Nail Hunts" by units in the vicinity of the Camps which afforded great amusement after the manner of foot-ball. Competitions in "hunts" would appear to have been started in one sector of the line; one unit was credited with 12 lbs. of nails in one hour, but whether the finals were ever played off, history does not relate. I fancy they were deferred by the Armistice to the next War. But the nail went on. His name was legion. It was the business of the man attending the "Cooker" marching along the road and using packing cases as fuel, to see that the stew was appetising. It was another man's job to look after the nails that dropped into the fire box or on the road. The same with the builder of huts and stables. The seriousness of the matter lay in the large number of "Quittor" cases for operation in Veterinary Hospitals.

I will close remarks under this chapter by a brief reference to:—

*Dietetic Diseases.*

Apart from the loss resulting from Debility, and reduced rations as a contributory cause, wastage from digestive disorders was comparatively slight in the Army in France. On one occasion there was serious poisoning from an admixture of

## **Wastage of Animals in War.**

Castor beans amongst the oats, the vessel carrying oats in bulk having without doubt previously carried castor beans as part cargo and in the hurry of requirement not having been properly cleaned out.

There was also occasional poisoning from feeding on certain Linseed cakes from the development of prussic acid, but this can be and was avoided by boiling the cake.

Sand Colic amongst units located on the dunes along the coast of Belgium was very prevalent, and expedients to prevent animals from eating sand, had to be adopted. It was a long time before animals got over the effects of sand, and it was a noticeable factor of Debility. An alkaline sand appeals to animals, and particularly when appetites are depraved or sharpened by want. It was no uncommon sight to see animals eat sand as if it was a bran mash. Sand Colic and its prevention formed the subject of special instructions, and in the matter of expedient for prevention I think there was little left to the imagination. Space will not admit of a description of the many devices.

### **D. Contagious and Specific Diseases.**

Of all the causes of wastage the contagious element of disease is by far the most serious and important. Communicable diseases in animals are so numerous and varied in their character that they demand of Veterinary Service the utmost vigilance, and the most profound skill it can command through its officers in prevention, control and suppression. An exact knowledge is required of all Contagious Diseases and the life history of their causal agents to scientifically put into operation the means of combat. It is par excellence the Veterinary Officers' War. The study of Contagious Disease is an absorbing and fascinating one, and with full knowledge of cause and effect the *modus operandi* of control becomes easy to the expert. In War the badness of things always asserts itself, the hand of control is by force of circumstances slackened, and the vast movements of men and animals conduce to the spread of evil elements. There are also new bolshevics of disease that spring up as specifics in our

midst, of obscure origin, that bother us intensely for the moment, and then disappear as mysteriously as they came. It is a funny World!. The World's a stage in more ways than one, and we ar actors. When contagious disease "takes the floor" we have to be pretty quick actors and know our parts.

Enter:—

*Glanders and Farcy.*

The old Napoleon that scourged Armies, killed by a Staff College graduate Mallein that has the prescient faculty of nipping operations in the bud and diagnosing the situation before danger arises! Through agency of Mallein we now have no trouble with this disease. The latest method of Testing for the detection of Glanders in its latent form is by the injection of special Mallein into the lower eyelid. A reaction indicating disease is easily detected, no temperature taking is necessary, and animals can perform their work while under the test, a very important matter on Active Service. Our policy is to test all animals on admission to Veterinary Hospitals and Remount Depots, and in the event of reactions to refer back to the unit to which the reactor belonged for test of the unit. Reactors, though showing no outward signs, of disease, are destroyed.

In the autumn of 1915 the frequent reactions encountered in animals evacuated from the front in France indicated a certain menace, and it was decided to test the whole Force. This was done during the winter, about 300,000 animals being subjected to the test. The disease was cleared out, and even though we were again threatened on the arrival of the Portuguese Expeditionary Force in the spring of 1917 and a few cases on the return of a Division from Italy, we had no more trouble. The total numbers of animals affected were 85 in 1917 and 36 in 1918. Thus has an old enemy been defeated.

*Epizootic Lymphangitis.*

(As long a name as its period of incubation, but may be lovingly referred to as "Epizoo".)



### ***Wastage of Animals in War.***

Considerable loss and in efficiency have been caused in certain countries and Expeditionary Forces through this serious affection. Its seriousness lies not in its mortality, but in its infectivity and its long incubation of  $2\frac{1}{2}$  to over 4 months. It was introduced into the French Army during the late war by their Algerian Troops and they had many cases: Their policy was to treat those with a commercial value. Our policy was eradication by destruction, a cheap policy in the long run, and moreover we had the very important matter of its exclusion from the British Islands on the return of our Force to consider. It is satisfactory to record that not a single case has been introduced into the United Kingdom.

Though beset by it in France we escaped until the 14th September 1917 when our first case occurred. Altogether we had 202 cases. They were mostly sporadic, and only in one instance did it assume anything like grave proportions viz. in a Regiment of Household Cavalry in which 80 cases occurred, the Regiment was drawn out of the line for isolation until it was successfully eradicated. Its eradication was due not only to destruction of the affected but to the use of a special proforma of report which covered enquiry as to source and action taken.

Another similar disease, and affecting the legs of animals chiefly, was, what we termed:—

*Ulcerative Cellulitis or as termed by the French.*

*Ulcerative Lymphangitis of Nocard.*

(I must apologise for using such long names, but unfortunately the baptismal names of present day new diseases must follow the dictates of fashion and learning).

This is a mud borne disease, and it gave both the French Veterinary Service and ourselves a lot of trouble. Treatment was by specially prepared vaccines or by antiseptic applications, but the disease is most intractable, liable to burst out again, and hope of success lay only in the milder cases evacuated early. Of these we calculated to cure 50% but 25% of apparent cures recurred. The French affirmed that 15% were curable. The disease is a very ugly one, and affected some of our best draught horses necessitating a considerable number of destructions.

I have previously alluded to the churned up mud of Flanders. Picture hygiene in a comparatively small area in Northern France holding say 450,000 animals for nearly four years, each animal excreting say 32 lbs. of dung and 10 gallons of urine daily. The soiling of the ground and liability to infective mud borne diseases can be readily realized and our difficulties appreciated. The wonder is that loss was not heavier from this class of disease.

Another disease which gave us great concern in France and which is undoubtedly one of insanitation was:—

*Specific or periodic Ophthalmia.*

The ailment made its appearance in France in March 1917 and by the end of the Campaign its victims ran into thousands. By February 1918 incidence including recurrency ran up to 1·4% of strength and then it somewhat abated.

The disease, is not new in fact it is the old "Moon Blindness" of the coaching days, occurring also in dealers' stables, Remount Depots and commercial stables sporadically in ordinary times, but it is left to war, in which large numbers of animals are employed, to disclose real intensity.

A more or less similar condition was experienced during the South Africa War and I think under any protracted war the same result will follow.

The disease is an iritis, recurrent, and ends in blindness either from "Cataract" or disorganization of the eye. It is not contagious in the ordinary acceptance of the term, i. e. directly from animal to animal, but it is microbial and its menace lies in our ignorance of the life history of the causal agent, and in its incurability. A young officer of the R.A.V.C. has separated an organism from the optic nerve, and inoculations of cultures have produced the disease. Moreover growth of the organism on broth emits the most pungent stable smell which makes me think that investigation is on the right track. It is to be hoped that correct issue will follow investigation because, as I have previously explained, before a contagious or specific disease can be successfully tackled and

## ***Wastage of Animals in War.***

suppressed, the strategy and tactics of the enemy in all his subtlety and insidiousness must be fully known. We are at a disadvantage when this is not so.

It is an interesting fact in regard to this disease that animals on becoming stone blind grow fat and stout. Perhaps it is case of what the eye never sees, the heart never grieves, or it may be a physiological process of the same nature as the fattening of ducks in a dark cellar. Certainly some of our best horses in France were blind, and at a Horse Show on Lines of Communication a pair of blind horses were a varied first prize as the best wagon team. Blind horses could be employed in certain units in forward areas but as a rule they were afraid of gun fire. The sadness of it was that so many otherwise splendid young horses were victims.

### *Respiratory Disease and Sea Voyages.*

The purchase of Remounts, particularly young horses, and their transportation by land and sea inevitably leads to outbreaks of disease of a respiratory nature, Strangles in the young, Catarrhal Fevers and Phenionias of the Influenza type in all. And unless the utmost care is taken in selection, in separation of sick, and in the movement only of those that are fit and well, loss will be heavy. Horses are delicate creatures in a matter of Influenza or Catarrhal Fevers. They die very readily.

In the United States of America, a country of stock yards, the liability to "Stock yard fever" which is a respiratory disease of an Influenza nature, is very great. Over 75% of animals purchased were reported to have contracted Catarrhal Fever in varying degree, and though I have no figures to give me, the loss, no doubt, was heavy. The only way to handle a situation of this kind is to get animals into proper hygienic reception depots as soon as possible after purchase and to hold them there quietly for sometime prior to shipment from embarkation depots, to ensure that they are over their sickness or free from the same before undertaking a sea voyage. Any sickness of this nature on board ship is serious.

I have had considerable experience in this particular duty and I know no more difficult matter.

## Wastage of Animals in War.

In France in the winter of 1914-15 animals and men suffered the heavy class of pneumonia was severe. In the winter of 1915 covered accommodation was difficult to find and horses were a considerable time to breed. French, German and American pneumonia prevailed. Later on as conditions improved and accommodation was ample, and after a period of holding animals in depots for as near three weeks as possible was insured wastage from respiratory sickness became negligible. Temperatures were taken on arrival from depots and if fever was noticed animals were immediately transferred to Veterinary Service. Respiratory Diseases at the Front during the last two years in the war were practically nil, or at all events were very infrequent. The suppression of these maladies showed that the system of inspection and control by Veterinary Service in German Depots, which in the United Kingdom and in France was efficient.

### Mange

I leave to the last our hardy and old war-boss, friend and self-constituted ally. There never was a War without him and never will be. He is permitted when to go down to Army in a familiar "Old chap" sort of style and he ever has the assurance to present himself at Armistice, and participate in relief parties of victory even though he may be downed in defeat.

He is covered with Orders, Routine Orders, and bears the scars and wound stripes of many campaigns and conflicts.

Unlike other Commanders in the Field his best operations are conducted in the Winter, the drier the conditions the better, and his leave season is in the Summer. The rise and fall of his fortunes in France can be best and most readily appreciated from a scrutiny of the accompanying charts.

In the first twelve months of the war in France, Mange was almost entirely excluded, but as the Army increased and supervision became more difficult, outbreaks were more frequent. It will be seen from the charts that incidence went up in the winter to 3.8%, which was the highest ever experienced, and down during the summer, with the casting of coats, to 1 per cent. The chart of 1918 is interesting in shewing the relative incidence between

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In France in the winter of 1914-15 sickness and loss amongst the heavy class of remounts was severe. It was extremely wet, covered accommodation was difficult to find, and depots took a considerable time to build. Fever, Catarrh and Penumonia prevailed. Later on as conditions improved and accommodation was ample, and after a policy of holding animals in Remount Depots for as near three weeks as possible was instituted, wastage from respiratory sickness became negligible. Temperatures were taken on arrival from overseas, and if fever was indicated, animals were immediately transferred to Veterinary Service. Respiratory Diseases at the Front during the last two years of the war were practically nil, or at all events were very infrequent. The suppression of these maladies shewed that the system of inspection and control by Veterinary Service in Remount Depots, both in the United Kingdom and in France was efficient.

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### ***Wastage of Animals in War.***

horses and mules, the highest occurrence in the latter being 1·6% in winter, and down to ·4% in Summer, mules being at least three times less prone to Mange than horses. These percentages included all cases, serious and slight, and all were sent down to Lines of Communication for treatment. The amount represented a considerable number of animals in the aggregate out of action, but considering the difficult circumstances, and looking at incidence from a percentage point of view, total inefficiency from this cause cannot be rated high in an animal parasitic disease, and in a war where so many animals are congregated together. Mange and Debility are usually associated, and though the former may be cured, the latter delays issue. Animals are out of action from one to two months. Our treatment was by immersion every few days in warm Calcium Sulphide Solution in large Dipping Baths, and proper grooming. Corps had their dipping Baths for prevention.

I regret to say that Mange (Sarcoptic Variety) is very prevalent amongst camels in India, and on Frontier Expeditions it occasions considerable wastage and loss of efficiency. The association of Debility and Mange is intensified in this animal. So large is the amount in Civil districts that purchasing officers have experienced a difficulty in purchasing clean animals and those with slight Mange have had to be accepted. The only course is to erect Dips at centres in Civil Districts and dip animals in the same manner as sheep. Camel Dips have been in use during the recent Waziristan Expedition with great success, and with periodical dipping, camels slightly or not too badly affected have been able to carry on their work. Dips are even being now erected in Eastern Persia.

The total occurrence of Mange in camels employed by Government for the year ending 31st March 1920 numbered 9910 cases, so that it is most necessary that measures of control should be more exact.

In the Somali Field Force of 1903-04 there were 3137 cases of Mange and skin disease in camels from July 1903 to March 1904 out of a strength of 9466 camels and mortality was severe.

A Mange Bath was used with great success, Perchloride of Mercury solution being used.

In the Kurram Field Force during the winter from November 1879 to March 1880, nearly every camel employed suffered from Mange. It spread with great rapidity and disappeared in the spring.

In the Tirah Expeditionary Force of 1897-98, from 1st October 1897 to 6th April 1898 with a force of 74,000 animals, there were 4,819 cases of Mange, 1,501 being in ponies and 190 in camels. The strength in camels was 12·257 and ponies 16·046. There were only 617 cases in mules out of strength of 15·328 and 409 cases in donkeys out of a strength of 13·854. Again we see the relative immunity of the mule and donkey as compared to horse kind. The records of Frontier Expeditions all shew high incidence in Winter and little in Summer.

### **III. WASTAGE PECULIAR TO INDIA.**

In order that I may remark more particularly on certain grave contagious diseases prevalent in India and their bearing on the Army, I have deemed it necessary to group them under the above heading. The dire diseases to which I refer are Rinderpest and Foot and Mouth Disease in Cattle, Surra in Camels, and Anthrax in various animals.

The history of these diseases and the dead loss sustained not only in the Army but in Civil Communities has been and still is appalling, and the machinery of control is most inadequate and imperfect in operation. One would have thought that with the mass of contagious animal disease of all kinds in India, worse by far than any other country that I am acquainted with, one of the first considerations would have been a properly constituted Contagious Diseases Animals' Act to suit the necessities of the country, but such is not the case, and animal life continues to be wasted. It is not for me to criticise policy, but I am all out to assist in the grading up of animal efficiency and in the reduction of wanton, unnecessary animal wastage and suffering. It is a duty that is put upon me. I am, however, now pleased to say that at



***Wastage of Animals in War.***

simple Diseases of Animals' Act India with Orders in respect to the various Contagious Diseases is to be considered. The very fact of such an act and Orders being in existence in the land of "Hukm" in itself will be productive of great good, and its application can easily be made adaptable to the circumstances and the needs of the country, generally and locally, and to the susceptibilities and customs of the inhabitants.

It is quite certain that no Commander in the Field using Bullock Transport—Government or Hired—can get very far without being faced with outbreaks of Rinderpest and Foot and Mouth Disease in these animals. It is our experience on all Frontier Expeditions, examples of which I will presently give. The bullock is much more suited to the quiet life of cantonment work in peace where he can rest from his easy labour under a tree in the heat of the day, and combine rumination with nice thoughts of his Valhalla, than to the hardships of a campaign which, unless care is exercised as to his locale of duty, would be a perfect hell to him. Southern bullocks e.g. the Mysore breeds, and also Sindhi, coming to northern climes, are much more susceptible to Rinderpest and Foot and Mouth Disease, and they are attacked in more virulent form.

In slaughter cattle, goats and sheep, it is also quite impossible to avoid outbreaks of these two diseases unless there is a better system of organized Veterinary control of inspection, purchase and movement, and even then the situation is difficult. Judging from losses from disease and from exhaustion and inanition entailed by marching meat on hoof, it would be more economical in the long run to adopt a cold storage policy. And in connection with the supply of meat on hoof I may relate a circumstance that occurred in France. Most of the sheep for consumption by Indian Troops were purchased in Algeria, were landed in Marseilles and held in various Communes in Vaucluse and Bouche Du Rhone before being sent by train to the troops in the North of France. Sheep pox (French Clavelee) is enzootic in Algeria, and French law necessitates clavelisation or inoculation against the disease on importation. The hand of control

as I have previously explained is apt to be relaxed during war, some loophole exists (e.g. introduction of Rabies into England in 1918) and disease escapes. Sheep pox broke out amongst the sheep held in Vacluse for Indian Troops, and Officers, R. A. V. C. in conjunction with French Communal Veterinary Officers were called in to clavelise the whole of the herd of 10,000 sheep. I mention this as an instance of the danger of moving slaughter stock on hoof, and I must say in the face of such danger the French Ministry of Agriculture were extraordinarily good in raising no objection to the procedure, and in its kind consideration of our Indian Troops.

#### *Rinderpest.*

India is the home of Rinderpest. The country is full of this disease and thousands of cattle are lost annually from it. It was introduced into England in 1863 and cost that country millions of pounds. It also spread through the whole of Africa from North to South some twenty five years ago, and occasioned very heavy mortality. Though the virus or organism is so small that it is ultravisible to the highest power of a microscope, and can pass through the closest grained filter, still we know that it perishes outside the animal's body in from forty eight hours to four days, and this factor greatly assists us in control. Moreover a serum confers an immunity to cover the purposes of an outbreak, and a further dual inoculation with such serum and virulent blood will confer a permanent or durable immunity. So that I am sanguine by the latter method we can render all animals in military employ durably immune, and reduce our trouble and loss. This is now in operation in the Army. It can not be carried into practice in Civil Districts as it is really conferring the disease, though in mild form.

#### *Food and Mouth Disease.*

The disease is very common in cattle all over the World and constantly crops up in India. It is extremely contagious and unfortunately one attack only confers immunity for about five months. No one has yet demonstrated the causal organism: it is also ultravisible, but it is fragile to ordinary methods of disinfection. There are no means of inoculation against the disease.

## **Wastage of Animals in War.**

Examples of Rinderpest and Foot and Mouth Disease on Active Service:—

Expedition.	Rinderpest.	Foot and Mouth Disease.
Chitral Relief Force 1st April to 31st August 1895.	1803 cases 1297 deaths and destructions out of 6363 animals. Was also amongst country cattle.	3675 cases 151 deaths 95 destructions Average time under treatment 10 to 14 days.
Tirah Expedition Oct 1st 1897 to Apl. 6th 1898	982 cases 524 deaths 43 destructions out of 13727 animals.	1378 cases. 45 deaths 3 destructions out of 13727 animals.
Tibet Mission 1904.	Very prevalent.	Great number of cases.
N. W. F. F. 1919 From May 1919 to Sept. 1919.	Approximately 400 cases Average strength of bullocks 3676. A considerable number of deaths amongst slaughter cattle.	778 cases Average strength in bullocks 3676.
Waziristan 1919-20. From June 1919 to May 1920.	650 cases. 430 deaths. Average strength 9700 Bullocks.	2430 cases in two outbreaks, one in June 1919 and the other in Feby. 1920 Average strength in bullocks 9700.

Out of 3000 yaks (3 Corps) only 70 remained; the rest haddled from Anthrax (385 cases) Rinderpest, Foot and Mouth Disease, Pleuro-pneumonia Contagiosa, Debility from too low altitudes and "Missing."

### *Anthrax.*

Grass Farms and clean supply of forage have tolled the knell of Anthrax in India. Outbreaks in the Army are now very infrequent. We have had during the past year a few isolated cases amongst camels in the North West Frontier. In comparison with this the record of the Kuram Force of 1879-80 is of great interest. During the months of July, August and September 1880, 1400 camels died from this disease at Kuram and Shalozan 217 on the road between Kuram and Thal, and 61 at Thal.

The Yaks of the Tibet Mission lost 385 from the disease.

The seriousness of the disease, apart from mortality, is that land on which animals have died and blood spilt, remains infective for many years, and if grazed on, say after rain, the disease is apt to be produced.

*Surra.*

(The word signifies "rotten" in the vernacular). Until within recent years we had no records of the incidence of, and mortality from, this disease in the Army, and Civil reports and returns throw absolutely no light on the subject. In Frontier Expeditions a large number of camels were hired, and were replaced by contractors if they died, and the closing of their account by compensation was of much more importance to the owners than any fine definition of the maladies from which they were spirited away. I should say that a good deal of the Debility and Exhaustion of camels in former days was really Surra, and in all probability this disease is at the root of a considerable amount of the Debility (poor condition), pneumonia, skin and other diseases encountered in these animals at the present day. The causal agent, a protozoon living in the blood and destroying it, was only discovered in 1880 (by an English Army Veterinary Surgeon, who was the first man to demonstrate Trypanosomes) and the disease in essence is a pernicious anaemia, a wasting away, and death. Affected equines die in from one to two months; camels, in whom it is usually chronic, may live to three years and over. The factors concerned in the spread of the disease are diseased animals constituting reservoirs of the infective agent, blood-sucking or biting flies as inoculators, and susceptible animals into whom the inoculators transfer the infective agent mechanically. It is a very simple process so far as we know, and these factors very materially guide us in control of the disease. The disease so far as our present researches go is incurable, at least in the practical domain of treatment. So serious has the Surra situation become in recent years that a Standing Surra Committee has been appointed at the instance of and under the direct guidance of the Civil and Military Administrations, and their efforts bid more than fair to achieve very happy results, which will not only preserve the camel

***Wastage of Animals in War.***

who is the principal animal concerned, from decimation, but save a large amount of loss to the State. Personally I am very sanguine as to the successful issue of measures which have been instituted, and under them I am very optimistic as to the future of the camel of India. If there is co-operation between the Civil and Military Authorities in the closing of the fountains of the disease as circumstances of disease dictate, if ways and means of destruction or avoidance of the prime factor or inoculator can be adopted, and better care of the susceptible creature taken, there can be no fear of any other issue than success.

For generations the camel has been shrouded in mystery—a mystery “Ship of the desert” and his management surrounded with the grossest ignorance and empiricism which in certain localities still does not rise beyond the level of smelling or testing his urine when he is sick, and covering his sores with filthy dung. Poor creature of Dirt, no other wonder he is “rotten”! Yet he is a domesticated animal required for work, and as such he must be treated if he is to take a permanent place as an Army animal, for the hard work of Frontier Warfare. And it is the duty of enlightened people to remove him from a lot that threatens his very existence. It grieves me very much to quote statistics of wastage from Surra during the past few years but they will serve to show the most urgent necessity for action on the one hand, and the remarkable result of altered policy in respect to the management and feeding of camels on the other.

In the year 1917-18 (ending 31st March) there were 9262 cases of Surra amongst animals in Military employ, of which 4181 died or were destroyed. 89 were horses and ponies, 26 were mules, 2 were buffaloes, and the rest camels. The total number of camels employed was 16189.

In the year ending 31st March 1919 there were 2106 cases of Surra admitted, 2143 deaths and destructions, including a few remaining from the previous year of which 44 were horses and ponies, 13 mules, and the remainder camels. The total strength of camels was 18,743.

1910



In last year ending 31st March 1920, there were 984 admissions for Surra, of which 971 were camels with 550 deaths and instructions, of which 537 were camels. 29,097 camels were employed. Practically during the whole of last year the camels are on Active Service; they were stall-fed and treated like other twice animals. They were not exposed to biting flies in grazing khls, and excepting a few that were transferred to a Surra Corps which worked in isolation a long distance from other Corps, diagnosed cases of Surra were destroyed. It is a remarkable drop in mortality and it speaks volumes for stall feeding of camels and attention to stable management.

During the fly or surra season, camel units are charged with the collection of biting flies (Tabanidae), their larvae and egg clusters on shrubs and blades of grass in the vicinity of their drinking water, and with the general policy pursued this year it is hoped to reduce loss still more. But what can be practised in Government Camel Corps is difficult to carry out in Silladar and Praantee camels when not embodied for military service, and herein lies the difficulty. However by a combination of Civil and Military effort, difficulties are not insurmountable, and if Surra is scheduled under an Act and Order there is no reason but to suppose that it will be successfully collared.

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## **ARMY VETERINARY SERVICE AS AN INSTRUCTIONAL AGENCY.**

BY

MAJOR-GENERAL SIR J. MOORE, K. C. M. G., C. B.,

*Director of Veterinary Services India.*

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In the late War when Officers and men were rapidly got together to serve their Country, the lack of knowledge of animals displayed was remarkable. It was really not surprising when one considered that the majority of men were drawn from business and trade pursuits in which horses formed no part. Take for instance a Division the Infantry of which consisted of seamen, and the Artillery composed of men drawn for the most part from mines. One can hardly imagine a more unfavourable combination of elements for the care and management of animals, and one can picture the disadvantage under which such a Formation at the outset laboured, and the results which followed in the train of inexperience and want of knowledge. Yet long before the end of time there were no proverbial flies on that Division in the general management of its animals. It is only one example of many, and it goes to show that in matters of animal management, instruction is just as necessary as in other military duties if a high or satisfactory standard of efficiency is to be maintained, and dead loss avoided. In the article which I have written entitled "Wastage of Animals in War" there is abundant evidence of wastage that with more perfect knowledge of animals, their temperament, their capacity for work and the general factors which go towards the preservation of their health, could have been avoided.

The avoidance of wastage is one of the business propositions of the Army, and a knowledge of business has under all circumstances to be acquired.

In the Regular Divisions and Cavalry of our pre-war Army, the knowledge and art of Animal Management was of a high order. It had been duly taught as a part of a routine system in units and at schools. The fine touch was never lost during the war,

## **Army Veterinary Service as an Instructional Agency.** 252

and the leaven that leaventh the lump remained to continue the process.

Looking at the question however from the individual point of view, it is necessary that arrangements should exist both in Peace and War whereby both Officers, and Non-Commissioned Officers can conveniently have the principles of Animal Management and the physiological laws which govern health and avoid sickness taught and explained to them both by precept and by example.

It is all a matter of Hygiene, and rightly it should come under that heading, for there is the Hygiene of the body in all its aspects of form and function as well as the Hygiene of the stable.

Precept is founded on a knowledge of Veterinary Anatomy and Physiology, therefore it is that Veterinary Service is charged with the duty of instruction with regard to the preservation of health of animals, and advice respecting the prevention of disease and inefficiency in its various forms. This does not affect the responsibility of Unit Commanders towards their animals, but it is the combination of responsibility and the assistance derived from expert sources that makes for health and efficiency.

I am of opinion that Animal Management or Animal Hygiene I dislike the term Horse-mastership should come within the purview of Military Training of the General Staff Branch of the Army, and that the curricula of Instructional Schools and Classes should be included in their training arrangements. The inclusion adds very little to General Staff duties, and the interest would be an incentive towards efficiency. Administrative arrangements would not of course be interfered with.

During the War in France with the constant influx of new officers and men as reinforcements in replacement of casualties, it was soon found that the new material required tuition in respect to the care and management of horses. In addition to instruction which was imparted by classes within their Formations as best possible a difficult and not altogether a convenient or satisfactory proceeding, classes of instruction were held at the large Veterinary Hospitals on Lines of Communication where

examples of wastage existed in abundance, and lessons of mismanagement could be fitly illustrated. The Classes were only of ten days' duration each, and the A. B. C. of Animal Management only was attempted, as it was deemed expedient to train as many Officers and Non-Commissioned Officers as possible in the quickest possible time. Up to May 1918, 850 young Officers and 4,500 Non-Commissioned Officers were trained. The Classes were limited to young Officers and Non-Commissioned Officers, the older and more experienced being debarred, General Headquarters arranged for the extension of the Officers' Messes and Non-Commissioned Officers' Messes to meet the situation, and the break from the conditions at the Front was as much appreciated as the Classes were useful. The majority of the pupils clamoured for an extended course, as they said they could not grasp everything in ten days, and that just when they got interested in the subject they were required to return to their units. A proposal was then put forward for a three weeks' course and fixed "Schools of Animal Management" with whole time Instructional Staffs, but the man power situation would not admit of it, and the original system had to continue until the termination of the campaign. However, it is very interesting to relate that after the Armistice the classes were re-constructed under the direction of the General Staff, as part of their big Education Scheme, into Classes of Agriculture and Animal Husbandry, and they became very popular for officers and men who desired to take up farming. The desire on the part of men for instruction was so keen on the conclusion of hostilities that in another direction, viz in Meat Inspection, Veterinary Service was asked if it could arrange classes, and for one class there were about five hundred applications. I mention these incidents to shew the value which officers and men themselves attached to instruction, the after armistice classes being entirely voluntary.

Let us see now how it can be applied as a practical proposition in the Army, and for easy discussion I shall arrange remarks under three headings, such remarks being held to relate specially to India:—

- A. Instruction during Peace.
- B. Instruction during War.
- C. Instruction in view of men taking their discharge from the Army.

**A.-Instruction during Peace:—**

In India there are two properly constituted Army Veterinary Schools, one in the South at Poona, and the other in the North at Ambala. Each is affiliated to a large Station Veterinary Hospital, and has therefore every facility for teaching and demonstration. The Principals of the Schools are specially selected by reason of their ability to teach, their experience of India, and their knowledge of Hindustani. Classes used to be of six weeks and two months duration, but to permit of more pupils being instructed, the period has been reduced to three weeks. The schedule of instruction is entirely directed towards Animal Management and the prevention of inefficiency, with a little instruction in methods of first aid. Dissertations on particular disease and treatment of a more advanced degree, which in days gone by used to form a considerable portion of the curriculum, have been curtailed. War has shewn that ineffectives are best handed over to a Special Service for treatment, and that the role of units is one of minimising inefficiency by knowledge and expedient rather than treatment of ineffectives, for which on active service they have no time even if the procedure was correct. Thus the aim and object of these classes is prevention of disease, wastage, and inefficiency, and to effect this more surely and perfectly, the young Officers and Non-Commissioned Officers, the more responsible personnel of units as it were, are selected for instruction so that on return to their units they may intelligently apply the principles which they have learned, and in turn instruct those under them. There are separate classes for British Officers, Indian Officers, British Warrant Officers and Non-Commissioned Officers and Indian Warrant Officers and Non-Commissioned Officers, and no branch of the Service is missed out. Another item of advantage in these classes would be for the teacher to take his class on occasion to the several units in the station,

and with the permission and assistance of Unit Commanders to see how horses are teamed up, how harness and saddlery is fitted and kept, and how loads are adjusted. The more varied the experience, the better is initiative suggested. It was wonderful during the late war what useful expedients for the comfort and well being of animals were adopted by personnel of units all the outcome of experience, teaching and intelligent interest taken.

A very important role therefore is played by our Army Veterinary Schools, and the training on essential lines should be carefully watched, anything unnecessary or redundant being excluded.

Army Veterinary Schools are also for the training of Army Veterinary Corps personnel specially in attendance on sick, dressing wounds etc.

In our Equitation Schools a syllabus of Animal Management can always be included in the general curriculum, and if there is not a Veterinary Instructor, an Officer of the Veterinary Service can always be detailed from the station to carry out the duty. The establishment of the Cavalry School at Saugor includes a Veterinary Instructor, who is specially selected. In addition to matters of Animal Management, animal conformation and mechanism in relation to training of horses is a considerable item of importance now in all Cavalry Schools. I need not add that it entails a knowledge of anatomy.

Furthermore it is always up to the Administrative Veterinary Officers of Divisions to arrange lectures and demonstrations within the Division as may be desired or as circumstances present themselves. For instance on the occasion of inspection of units, very often a few useful hints or lessons may be imparted, particularly perhaps with regard to dieting in relation to season or work, care of feet and shoeing, and any other matter which the inspection suggests. In point of fact, the value of a Veterinary inspection of a unit is not altogether one of report on efficiency or otherwise to a superior officer, but it is the watching of any item that can be improved or remedied, conducing thereby to the

health and efficiency of the animals concerned. I call to mind the many pleasant days and hours spent with Commanding Officers in the old times of my inspecting career in India, when we used to have a regular sort of "indaba" on animals, getting rid of the effete, and discussing ways and means of bettering a situation, arrangements probably having been made specially some time before. The principle of assistance and advisory council can always be made to fall in with the formality of inspection, and in its varied aspects it fits the Administrative Officer of Veterinary Service almost more perfectly than any other Administrative Service or Department. It is at all events an item of instructional agency on which great store can be laid.

### **B—Instructions during War.**

The difficulty of this is very readily apparent. First mobilisation upsets all teaching in schools, as all ranks are required to take their places in their units, and a good many of our units in India, particularly perhaps in transport units, are not too well endowed with the necessary responsible personnel for supervision and care of animals in the manifold duties in the Field. Schools, too, for the same reason are apt to close down.

However so far as Army Veterinary Schools are concerned, as these institutions are contiguous to Army Veterinary Corps Depots, which will certainly be required to function in war as well as in peace, it would be quite simple from a working point of view to continue the Schools, in fact they will be required to function during war for the training of A. V. C. personnel of the Depots. So that it would be quite feasible at the same time to undertake instruction in Animal Management for Officers and Other Ranks reinforcements of units as may be desired, even if periods of only ten days courses were all that could be afforded. It would be a more suitable and convenient proceeding than collecting Officers and Other Ranks in the Field at selected centres. During the late Expeditions on the Frontier the latter was adopted by General Officers Commanding Divisions, Cavalry Brigades and Divisional Areas whenever possible and when other duties did not interfere, but when establishments are short it is not altogether a practical



proposition. However, a few ten days classes in the Field were arranged, Mobile Veterinary Sections, Field Veterinary Hospitals and Transport units being used as demonstration units, the A. D. V. S. and A. D. S. & T. of Formations giving lectures and demonstrations on a simple syllabus published in Army Routine Orders.

In any case one has to be guided by opportunity and necessity while on Field Service. The situation can always be watched, and action taken accordingly. Ways and means may suitably present themselves, and so far as the Front is concerned we may leave it at that.

### **C.—Instruction in View of men taking their discharge**

The Army has accepted the view that its responsibility to the soldier is not altogether confined to his training and use as a fighting man. The Great War has shewn that it has another and greater responsibility, namely that the best years of the soldier's life should not be idly wasted as it were, but that in view of his return to civil life, he should be prepared for some trade or calling which will render him economically efficient and a good citizen of his country. A policy of General Educational Training has therefore been introduced into the Army, and without question, it is not only a step in the right direction, but it has come to stay and it will bear good healthy fruit.

I know of no better direction in which this policy can be considered in India, nor where greater necessity for instruction enlightenment exists, than in Agriculture and Animal Husbandry. I have grouped the two together as obviously they are co-related, and I have used the term Animal Husbandry advisedly as it covers everything that appertains to the breeding, raising and care of stock.

The majority of our Indian soldiers are drawn from the Zemindar class. If therefore we can by some simple process give them the benefit of our experience and of progressive ideas with regard to agriculture and the management of stock, we are not only enriching the individual, but helping the country to an incalculable degree. I should like to speak with no uncertain tone in this matter and

## ***Army Veterinary Service as an Instructional Agency.*** 258

as one who is brought face to face with the necessity that something should be done to improve the lot and reduce the suffering and loss of animals in India. In my paper entitled "Wastage of Animals in War" I showed, as briefly as I could, the serious amount of loss resulting in the Army from dire contagious animal diseases. This is nothing to what occurs in Civil Communities in India and on which the Army is dependent for its Transport and Food supply. In the Civil Veterinary Statistical Returns for year 1917-18, 3,175 Equines, 249010 Bovines and 22,375 other animals are shown as having died from Contagious Disease alone. In the year 1918-19, 933 Equines, 228414 Bovines, and 12,858 others are similarly shewn, and Reports at the same time make it quite certain that owing to the weakness of the cadre of the Civil Veterinary Department and the inadequacy of the machinery necessary for complete control, full mortality is not recorded.

Anyone also visiting the Imperial City of Delhi and seeing the miserable tonga and gharry ponies, requiring the "lakri" and "chabuk" to accelerate their movements, cannot but be struck at the backwardness of the country in respect to its animals. India has made very rapid strides in Agriculture during the past ten years, but the Animal Husbandry side of Agriculture has not kept pace with the growth of crops. Newspapers teem with reports and literature regarding wheat and cotton, but not a single word ever appears about stock. In my opinion it is really a very sad situation, and the danger of it is there may come a day when the country wakes up to the fact that through heavy mortality and perhaps indifference to true interest, there is a grave shortage of animals necessary for the life of the country.

The Army through its Educational Policy can be made a very powerful factor for good in the situation described. By a combination of Civil Veterinary and Agricultural Departments, and the Veterinary Service of the Army, it ought not to be difficult to draw out some plan of campaign whereby men before taking their discharge and returning to civil life in rural districts, could receive a little up to date instruction in animal husbandry, dairying, farm economies etc. The awakening of an intelligent interest is most desirable in the first instance. Progress will

follow in its train. The General Staff of the Army in India has already the matter in hand, as will be seen from extracts of a Circular letter to all Commands, dated 31st March 1920, which I now quote:—

“The Army for the purpose of Education cannot be regarded as a watertight compartment, and the Government of India has invited the co-operation of Local Governments and Administrations with local military authorities in furthering the development of educational training; Officers Commanding should therefore have no hesitation in seeking the advice and assistance of members of Civil and Educational Services; such advice and assistance will be of the greatest value and of a nature unobtainable from any other source.”

“The proposals under consideration contemplate therefore the provision of facilities either within or without units, for instruction in rural economy, i.e. general agriculture, horticulture, dairying, animal husbandry, Veterinary Science, farm economics—including forms of co-operation as applied to agriculture—agricultural engineering, elementary mensuration and land surveying, land tenures etc., and where desired, for instruction in cottage and village industries.”

It is to be hoped in the interest of stock that such measures can be introduced soon. The Army with its Veterinary Service on a self-contained basis, complete with its own trained personnel, and with its Veterinary Hospitals properly organized and conducted, will have every facility for carrying out its desired programme in conjunction with the Civil Authorities.

#### **Instruction in Shoeing and Schools of Farriery.**

From almost time immemorial, the advisory council in respect to shoeing of animals of the Army, the supervision of training of Farriers and Shoeing Smiths, and questions regarding the fixing of the various patterns of shoes, have been vested in and referred to the Veterinary Service of the Army. Regimental Veterinary subordinate assistance has from distant ages been carried out by the Farriery Establishment, and the great majority of lameness is referable to the foot, and often remedy is by special shoeing. The interests of the Farriery establishments of

**Army Veterinary Service as an Instructional Agency.** 260

units and all that appertains to their duties have been carefully watched and assisted by Army Veterinary Service.

Training is essentially regimental, and so far as British units are concerned, this system was very pointedly ordered by Army Council Instruction about two years ago, Schools of Farriery which were organised during the war being closed down. A regimental system of training may be quite satisfactory in peace time but it falls to the ground in war, and resourse must then be taken to teaching in Schools or Depots. A different system in peace and war is not judicious, and a change at a critical time is hardly good business. Personally I am of opinion that all training of shoeing smiths should be conducted in properly organized Schools of Farriery. It would suit Indian requirements much better than a watertight regimental system which is difficult in the case of small units and in those of Administrative Services and Departments. Moreover by means of Schools, requirements for war including expansions for war, would be more satisfactorily met. Great difficulty was experienced during the late Frontier Expeditions in obtaining shoeing-smiths, not only for new units raised but for replacement of casualties. Divisional Schools of Farriery have been organised to meet more particularly the needs of small units other than British mounted units in which the regimental system continues. They are however only tentative arrangements, and are pending the consideration, at some future date, of the formation of more complete self contained Command Schools of Farriery. I am also inclined to think that advantage and economy might accrue from the creation of a Corps of Farriers or a Farriers' Branch of a general Corps of Artificers, the personnel to be attached to units as required, and with arrangements to meet expansion for war by means of reserves. There are lots of good practical men who are not only capable of instructing, but knowing the requirements of the Army perfectly, are capable of administration. A body of men like our well-proved Army Farriers, with usually long service to their credit, is well worthy of consideration and advancement, and I can vouch for the output of their labours being of an efficient and economic order.

# **THE MUTINY DAY BY DAY,**

BEING

EXTRACTS FROM THE LETTERS

OF

GENERAL SIR ARCHDALE WILSON, BART, G. C. B.  
TO HIS WIFE.

PART I.

*Meerut to Delhi.*

Sir Archdale Wilson of Delhi was the fifth of thirteen sons of the Hon'ble and Rev. George Wilson, a younger brother of Lord Berners. He was born on the 3rd of August 1803 at Kirby Cane Hall, Norfolk, a Georgian house which has remained almost unchanged since that date. Throughout his life he retained a passionate attachment to the delectable county of his birth, and nothing gave him greater pleasure than the thought that he had added one to the long list of notable men who had sprung from Norfolk.

He was educated at King Edward the Sixth's Grammar School, Norwich, and at the early age of sixteen he sailed for India as a Second-Lieutenant in the Honourable East India Company's Artillery. In 1826 he served with distinction under Lord Combermere at the siege of Bhurtpore, for which he received a medal. In 1839 Major Wilson was appointed to command the Artillery at Lucknow, still in the Dominions of the King of Oudh, but a year later he was transferred to Cossipore in charge of the Foundry.

While at Cossipore, the new arsenal at Delhi was completed and stored. By the irony of fate Wilson was thus responsible for the casting of most of the guns which were turned against the British forces before Delhi, and he had on more than one occasion to regret the excellence of his work. He was promoted to the rank of Lieutenant-Colonel in 1847 and to the command of a battalion.

During the second Sikh War he again came into prominence and was recommended for honorary distinction. Subsequently he became Commandant of Artillery, first at Jullunder and then at Dum Dum. In 1855 he was given Command of the Artillery throughout the Presidency of Bengal, with Command of the Station at Meerut.

In 1842 he had married Ellen, daughter of Brigadier-General Warren Hastings Frith, then Commandant of Bengal Artillery. In the beginning of 1857 he had a sharp attack of small-pox, through which his wife nursed him. He was then sent to the hills on sick leave, to recruit his health, and leaving his wife at Mussoorie, he returned to duty at Meerut on the 2nd of May, about a week before the outbreak at that station.

When the storm burst, Wilson was nearly 54 years of age, and his fine constitution had been much impaired by long residence in the plains of India. He was a grave and somewhat silent man, of a shy and retiring disposition, but he had a warm heart and an attractive smile. Most careful and thorough in all that he did, he placed little confidence in his own powers, but he was deeply religious and his vigorous faith was his chief source of strength. A few passages from various writers, describing his appearance and characteristics, are added as showing the nature of the man.

A private letter from an officer, written in June, 1857, contains the remark:—"Never once has the Commander-in-Chief or a Brigadier even visited our batteries, except Brigadier Wilson. It is delicious to see him under fire, he is so cool and collected."

In a contemporary article in "Household Words" we read:—

"About half an hour after daylight the General and his Staff appeared. It was the first time I had seen him. He came into the Battery and commenced reconnoitring the walls from behind the cover of the gabions, while I had a good opportunity of examining him. He is a tall man with very large contemplative eyes, a high forehead, grizzled hair, no whiskers, but a moustache and a goat's beard....His passion for Artillery, his

***The Mutiny day by day.***

old trade, is unconquerable. Since then I have had many opportunities of seeing and observing him, but I never yet saw him pass Artillery of any kind, guns, mortars or howitzers large or small, without looking over them carefully, putting his thumbs into the vents, trying with his own hands if they were loaded or empty, and finally, when departing, giving them an affectionate pat, a sort of parental farewell, as if to say, 'Now be a good gun, and behave properly, till I see you again.'

The "History of the Siege of Delhi" by 'One who served there' gives a further account:—

"On the 17th July, General Reed, whose health had now fairly broken down, left for Simla. The command of the force was given to Brigadier Archdale Wilson. This was received with much pleasure, but some surprise. He was not the Senior General in Camp:—but had distinguished himself much, especially in the actions at Ghazee-oo-deen-nuggur [Ghaziabad]. He was known as an excellent Artillery Officer, and a man of sense and determination of character. Time had turned his hair to iron grey, but did not yet press down his tall spare form.....Against all bad treatment of the natives the General declared war. He had published in the order-book the trial of a sergeant, accused of the murder of one of the Camp servants. He was acquitted, but the General stated his determination to protect the natives in the Camp from ill-usage. This became known to every Hindostani, and had a very good effect both on them and on the Europeans. The Officers, too, became more disposed to check the roughness of their men, and to appreciate the value of the aid which we might derive from the people of the country."

To this kindly and prudent disposition of Wilson further reference will be made. To his military sagacity Lord Roberts bears evidence:—

"General Reed was succeeded by Brigadier Archdale Wilson, the officer who commanded the Meerut Column at the beginning of the campaign, and who was so successful in the fights on the Hindun.....Wilson's succession to the command gave great

relief to the troops on account of the systematic manner in which he arranged for the various duties, and the order and method he introduced. The comparative rest to the troops, as well as the sanitary improvements he effected, did a good deal for the health of the force. Wilson also took advantage of the re-inforcements we had received to strengthen our position. As far as possible he put a stop to the practice of following up the enemy close to the city walls when they were driven off after an attack (a practice which had cost us many lives), contenting himself with preventing the rebels from remaining within the vicinity of our advanced posts."

For his services during the Mutiny, Archdale Wilson received in succession the C. B., the K. C. B., a Baronetcy and later the G. C. B. His return to England in 1858 saw the end of his active service. His health had broken down and he had greatly aged under the continued strain to which he had been exposed. He returned, as he had longed, to his beloved Norfolk and resided at Ashwellthorpe Hall, but after some years he went to London, and there lived till his death in 1874 at Park Crescent, Portland Place.

Lady Wilson long survived him. She had treasured his letters and till her death refused to let them out of her hands. These records were bequeathed to her niece, Miss Wilson, with the express desire that they should not be thrown into the waste-paper basket. Owing to the kindness of Miss Wilson I have been given a copy of the complete correspondence and have received permission to make public such portions as are not too strictly personal and private.

The accompanying portrait of Sir Archdale Wilson is taken from a photograph of an engraving in the possession of his nephew, the present Baronet, Admiral of the Fleet Sir Arthur Knyvet Wilson, V.C., O.M., G.C.B., G.C.V.O.

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***The Mutiny day by day.***

## I.

*Meerut, 2nd May, 1857*

I arrived a little after 9 o'clock, all sound in wind and limb, but such a high wind blew yesterday and most part of last night. I met Williams at Khulur, looking, I thought, rather knocked up..

I have spoken to John about going up to you, and I think he will start about the 20th. He was looking thin but well. The Doctor is very flourishing. Nothing yet decided about the mutinous rascals of the 3rd Cavalry, but I hear they are to be all tried and I hope, an example will be made of them. Our Recruits, 17 of them, were turned to the right about and sent back to their Papas and Mamas to hold the plough again.

NOTE.—Lieutenant John Frith was a brother of Lady Wilson and was in the Bengal Artillery.

The 3rd Cavalry, to the number of 85 men, had mutinied on parade, in the matter of the greased cartridges, on the morning of the 24th of April 1857. The matter was investigated by a Court of Inquiry composed of six Native Officers, and on their report, which elicited nothing of a definite nature beyond the fact that the men were acting under external influences, General the Hon'ble George Anson, the Commander-in-Chief, ordered a Native General Court Martial to be assembled.

## II.

*Meerut,  
4th. May, 1857.*

The up-country Dawks come in now in the afternoon, and yesterday evening I received your dear letter of the 1st.

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I found my garden here all gone. The geraniums have gone out of flower and only a few sickly fuschias left. The horses have all got as fat as butter. I rode Mischief this morning, and full of mischief he was, John never having once mounted him during my absence. He tucked into the bread, however, with great gusto. The teal are very fine and fat, and there are no end of quail. So we shall not starve in the hot weather. I find no end of business waiting for me here, and my work is added to by those mutinous fellows in the 3rd Cavalry. The 85 men who refused the cartridges are to be tried in a lump. They have now taken to burning bungalows. Last night they burned an empty bungalow and that of the Q.M. Sergeant and

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some days ago a picket's stable and one of the men's hut's. I hope a severe example will be made of the rascals.

**NOTE.**—The hut first burned was that of a sowar of the 3rd Cavalry named Brijmohan Singh, a Chamar who had been dismissed from an Infantry Regiment but had changed his name and enlisted fraudulently in the Cavalry. He was detested by the men, not only because of his low caste and impersonation, but also because he had ingratiated himself with the Commanding Officer, Brevet-Colonel G. M. C. Smyth, and was regarded by the regiment as a spy and informer.

### III.

*Meerut,*

*6th. May, 1857.*

I shall be very glad when we have settled with these mutineers of the 3rd. Cavalry. The Court is now sitting, and probably tomorrow may be the day of punishment as the Major General has authority given him to carry out the sentence without reference to Hd. Qrs. Yesterday and this morning we had parades—the first for presenting a medal to a soldier of the Rifles. Today to read a G. O. order sentencing a Sepoy of 34th to death. Mischief on each occasion behaved like a good boy. He is certainly a very delightful horse to ride, and I do not wonder at your missing him. I do not know when John will go up the Hill—he talks of leaving this on the 25th. but he does not know.

**NOTE.**—Major-General W. Hewitt of the Company's Service was then in command at Meerut. He at once confirmed the sentence of the Court-Martial, merely reducing the sentence to five years in the case of eleven young Sowars.

The Sepoy of the 34th N. I. was Mangul Pande, who in March had cut down Lieutenant Baugh on parade at Barrackpore.

### IV.

*Meerut,*

*8th. May, 1857.*

I have your two letters of the 4th. and 5th. to acknowledge and now to reply to them. The originator of the rumour that Col. Shuldham and his officers had been fired at must have been some mischievous person, there is no truth whatever in it.

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We have a parade of the troops tomorrow morning again, to settle these mutineers of the 3rd. Cavalry; none of them are to be hanged. All are sentenced to ten years hard labour on the roads. I have been busy all day giving orders and arranging for their discharge. All well here. No news.

## V.

*Meerut,**10th. May 1857.*

There seems to be no secret here about the Agra Bank. The warning came in an anonymous letter to Hogge. But what faith is to be put in it? You are welcome to tell Mrs. Trench all you know about it. I am sorry to hear such an account of your weather, and the consequent sickness. We had a storm here yesterday evening which cleared the air and made it quite cold. I hope it extended to the Hills.

The 85 Mutineers of the 3rd Cavalry were all sentenced to 10 years on the roads. We had a general parade yesterday morning to read the sentence after which prisoners had their irons riveted on them, they were then marched down the line, and escorted direct to the Jail. So ends this business. I expected 4 or 5 of them would have been hanged, but I am not sorry it was otherwise, as I should have had a very unpleasant and disagreeable business to superintend. I hope we shall have no more of this feeling here.

\* \* \* \* \*

NOTE.—This letter was despatched just before the outbreak on the 10th May. The sympathy with the prisoners displayed by the 3rd Cavalry and by the 11th and 20th N. I. was evident to many, but it is certain that the idea of guarding the jail with European troops did not occur to the authorities. Lord Canning afterwards expressed the opinion that the conduct of the ceremony and the subsequent consignment of the mutineers to the jail under a Native guard were acts of inconceivable folly. It was easy to be wise after the event, but the mere suggestion of a general rebellion on the part of the Native troops would have been treated with indignant disbelief. The nature of the shock when the storm burst is clear from the subsequent letters.

## VI.

*Meerut,**11th. May, 1857.*

I hope this will reach you as soon if not sooner than the

report of what has occurred here last night. At half past six o'clock just as I had stepped into my carriage for a drive, Whish came galloping into my compound to say that both Native Regiments and the third Cavalry were in a state of open mutiny and were murdering every European they could meet. I immediately got out Mischief, galloped down to the Rifles' Lines who luckily were just parading for Church. I sent orders also for the Dragoons and Artillery to join. In a very short time, in about half an hour we moved off towards the Native lines but found the whole had made off and it being dark we could not follow them. We only saw a few of the 3rd Cavalry who on our approach rode off to warn the others. We then retired and took up a position on the Mall protecting the Europeans' Barracks and lines. The scoundrels in about an hour's time committed an immensity of destruction. They have burnt down nearly every bungalow on the south side of the Nullah, including the General's and Greathed's, and I am very sorry to say several officers, women, children and European soldiers have been cruelly and ruthlessly murdered. Colonel Finnis commanding 11th. & Captain Taylor commanding 10th. were, I believe the first who fell, besides these, Captain Macdonald, Lieut. Macnab, Dep. Surgeon Phillips and Dawson and Mrs. Tregan, Dr. Christie severely wounded, Mrs. Chambers of the 11th. killed, Mrs. Macdonald, missing, supposed to have been burnt in her house, 3 European women killed and about 9 men, 3 or 4 others wounded. At daybreak this morning, we perambulated thro' the destroyed lines, and picked up the above. The carabineers whom I sent forward to reconnoitre on the Delhi road, by which the scoundrels were said to have retired, came upon a party of them, killed two, and took some prisoners. The worst feature in the whole case is that the people of the City and Sudder joined with the Mutineers and by them most of the murders were committed. The Telegraph wires are all cut, and they have stopped the Calcutta Dawk, so you may suppose we are not in a pleasant situation; as I did not get a wink of sleep last night, you may suppose I am

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pretty tired, so is poor Mischief who had his saddle on from half past six last night to 8 this morning and was pretty well galloped about besides. I have lots to do and think of. I will send further particulars tomorrow.

None of the bungalows on our side of the Nullah have been burnt, and I hope to protect them though it is difficult with the small force I now have at Command. My own Guard fired at Col. Smyth, young Pemberton and Bicknell, immediately after I had left the compound yesterday evening; they then joined the Mutineers.

**NOTE**—Captain Whish was the Brigade-Major.

The letter does not give the various incidents in narrative form. The trouble was started by the 3rd Cavalry, who broke open the jail and released their comrades. While they were thus engaged, the men of the 11th and 20th (not 10th as stated) were in great excitement. Colonel Finnis commanding the 11th rode down to the lines and was shot by a sepoy of the 20th and then ensued a general attack on all Europeans within reach. Much has been said of the inaction of the authorities. Wilson and Mr. Hervey Greathed, the Commissioner, believed that the European lines would be attacked in the rear, and that therefore protective measures were necessary. It was dark by the time any action could have been taken. Half the Carabineers were unmounted, while the Artillery consisted largely of recruits, and the position, in view of the fact that some 2000 mutineers had on their side the city rabble and the jail population, was naturally one to create some anxiety. It is worthy of note that the Carabineers actually did advance along the Delhi road, a statement which contraverts many subsequent criticisms; while the fact that all the damage was done in an hour or so throws an interesting light on Colonel Malleon's story of "a night of horror such as History has rarely recorded." Before the troops could move the mutineers had vanished, scattering through the city and over the country. Pursuit for the moment was clearly impossible, and the assertion that the right course was to rescue the Officers of the mutinous regiments before assembling the European troops and securing the cantonment is manifestly absurd.

It is true that Malleon commends the activity of Archdale Wilson in assembling the troops and posting guards on the treasury and barracks; but in attacking the General Commanding the Division, who had assumed personal command, he spares no one, and suggest that all were equally to blame for lack of foresight in a situation which was shrouled in the obscurity caused by the absence of clear information from the start.

That, as regards Meerut at any rate, the outbreak had been prearranged was clear from the evidence elicited at the trial of Bahadur Shah. The mutineers had secured all the carriages plying between Meerut and Delhi, so that on the release of the prisoners they were in a position to despatch a large deputation at a moment's notice to the Fort at Delhi, a fact which gave them ample start and rendered pursuit more than problematical.

## VII.

*Meerut,**12th. May 1857.*

Things are coming to a crisis. The Delhi Batteries have joined our Mutineers and have murdered all their officers. Young Aislable of ours has just ridden over from Delhi, having escaped by swimming the river. Dr. Tessier was shut up in the Lower Battery with 2 Guns and some officers, but what can we do? The mutineers will most probably go on to Agra or they may return here, it is impossible to say. We have no power to move having no cattle except 15 elephants and a few bullocks. I have no time for more.

NOTE.—This Comment on the inability of the force to move explains much. There was no military transport with the Brigade, and the task of collecting bullock carts from the villages which were already in a state of excited rebellion must have been well-nigh impossible. The Meerut authorities were blamed for not communicating with Delhi, but communication was cut off and for days they remained wholly in the dark.

## VIII.

*Meerut,**15th. May 1857.*

No dawn either yesterday or today from Mussourie, the rebels have burned and plundered Moosuffernugger and the road is, I suppose, closed. The Sappers marched in this morning, and we have sent for the Sirmoor Battalion from Deyrah leaving 2 Companies at that place. These with convalescents at Landour will afford you all protection against any force likely to come against you. You may probably be all ordered to congregate at Landour, but I do not suppose any probability of your being molested. We received a letter from Hd. Quarters stating that the 3 European Regts. in the Hills were ordered to march to Umballa.

The only intelligence we have had from Delhi is that the Rajah has joined the Rebels. The Dawks are evidently getting uncertain and I fear you will lose many of my letters. I will however try and send you a few lines everyday, more than a

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scrap you must not expect. I have been 6 hours writing this, so you may suppose the constant interruption. How I thank God that you are away from this, and I trust in perfect safety. If you had been here, I should have been unfit for my work. I have just seen Mackinnon—he is looking well, and says Christie is doing very well indeed.

John works like a Trojan and I think thrives upon it. I am well supported particularly by my own Regt.

Nothing has been heard of Willoughby's fate.

**NOTE.**—The movements of the Meerut force were directed from Simla. The instructions were to stand fast during concentration, with the intention of joining up with Headquarters. This actually took place, but after much delay. The Ambala force lacked transport, heavy guns and ammunition. Had Wilson been aware of the lamentable condition of the administrative services, he would not have complained of enforced inactivity.

By "the Rajah" he meant Bahadur Shah, the King of Delhi.

All this time Wilson was very busy personally superintending the defence of the Cantonment. The Artillery Depot was converted into a central keep, and by the time he left was a fort of considerable strength.

**IX.**

*Meerut,*

*16th. May 1857.*

Today I received yours of the 12th & 13th. I can imagine the shock you must all have experienced at the news, but cheer up, all is coming round again even faster than I expected. We have re-established with Agra our communication by telegraph. Mr. Colvin is acting nobly and energetically, martial law has been proclaimed in the Meerut, Bolundshuher and Goorgaun Districts, and we are ordered to act energetically in hunting and punishing all the late mutineers, marauders and plunderers. After what has occurred here, you may well suppose we shall not be backward in carrying out these orders. I burnt a large village last night for harbouring plunderers, and send a party tomorrow on a similar duty. We expect the Simoor Battalion to-night. The King of Delhi having proclaimed himself the head of this movement has done more for us than anything else could have done. No respectable Rajah will join him, and they are all offering us their assistance. The rebels we hear have no intention of moving from

Delhi. We shall have to go there and smash them, when all will be over and our government stronger than ever, and the Great Mogul no longer in being. We are all well here and in good health and spirits, well supplied with provisions, but no carriage, only anxious to have a fair turn up with them. I fear no hopes can be entertained of Willoughby or Wilson surviving, the former acted and must have died most nobly, and I sympathise with his mother losing such a son. I sadly feel the want of my Binocular and of Marmaduke, but Mischief behaves nobly and bears his hard work like a Trump. Keep up your own and others' spirits, all will soon be right again.

NOTE.—The Sirmoor Battalion, now the 2nd, King Edward's Own, Gurkha Rifles, from Dehra and the headquarters of the Sappers and Miners from Roorkee were ordered to Meerut on the 14th May, as intimated from Simla. The next day General Anson reached Ambala and joined Major-General Sir H. Barnard who was attempting to organise a field force with scanty material. Transport was almost as deficient there as at Meerut.

# X.

*Sunday,  
17th. May 1857.*

Yesterday was a day of fearful excitement. About 3 p. m. or a little after, the alarm was given that the Sappers had mutinied and were going off. I immediately sounded the assembly, sent for 2 H. A. Guns with a squadron of Carabineers to follow me, and sending on a party of the 3rd. Cavalry who were paraded at our barracks to watch the fugitives. I went down to the Sapper lines, and found they had shot Frazer their Commanding Officer and with the exception of about 150 who were employed on Picquet and as a working party at another part of the cantonment, had run off with their arms. The Guns having come up followed by the Dragoons, I went after them. We were at first led astray and lost time and ground, by having to make a detour, but after at least a six mile ride we came up with a party of 50, posted in a small Tope. It took us some time and no little trouble as the Dragoons could not get at



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them except by dismounting. We at last destroyed every one of them. They had shot their Commanding Officer in a deliberate coldblooded manner and I therefore neither offered nor gave any quarter. The fellows fought manfully for their lives to the very last man. I am sorry to tell you that Hogge who came out with me was wounded, we lost besides 1 Dragoon killed, 2 wounded and 2 horses. Hogge's wound is in the thigh, a flesh wound, not dangerous but we cannot afford to lose his services even for a few days. This business has quite upset me. Yesterday morning I would have trusted the Sappers as I would a European Regiment: today I can trust no Native Regiment, not even the Ghoorkhas. They have not arrived and I fear something has happened to them. Most likely the Canal Locks have been destroyed, which delayed them. Another such day of excitement will kill me quite. I cannot see what will be the end, but unless the Commander-in-Chief concentrates his European Force and comes down quickly everything will be lost. The whole country about this is in a fearful state.

I consider you are all quite safe at Landour, if only you keep up your supplies. This should be looked to quickly. We are all in the hands of God, and to His will we must submit and I trust He will still throw over us His Heavenly protection and bring us out of all these troubles.

NOTE:—The defection of the Sappers and Miners was a blow which for the moment crushed the spirit of the Brigadier. The regiment, under the arrangements made by Colonel Baird Smith, had mobilised and marched with great rapidity with Major Fraser in command. They had been suspected at Roorkee, but the opinion expressed by Wilson shows that the possibility of their disloyalty had never been conceived at Meerut. The excuse for the outbreak afforded by the depositing of the ammunition in the magazine was paltry, but it sufficed for them to shoot Major Fraser and to bolt. On this occasion action was prompt, but the great majority escaped. Two companies of the mutinous battalion were held fast and disarmed, useful work being performed by them afterwards in the fortification of the magazine and the Artillery Depot.

**XI.**

*Meerut 19th. May, 1857.*

We continue all well and comfortable as can be expected

here, determined to keep this place until the C. in C. can come up and take us on to Delhi. Nearly all the party from Mussourie came in last night. Palmer is the only one I have heard of as missing, and you will have heard of his fate. We recovered also 7 officers, 10 women and 2 or 3 merchants, fugitives from Delhi. Among these is young Wilson of ours. I hear you are all in great alarm for yourselves at Mussourie. I do not think there is the least cause for this, and I hope you will do your best to allay it. I am fagged, but quite well, and so is John.

NOTE:—This letter illustrates the position as visualised by the Meerut garrison. Delhi was definitely lost, and until action could be taken on an extensive scale, it was imperative to secure a military station of the first importance. This view was perfectly sound, but it did not appeal to the authorities in Calcutta who, in their ignorance of the prime factors which govern military activity, regarded fighting units as so many chessmen capable of being moved at will to any convenient position on the board.

XII.

*Meerut,*

*20th. May 1857.*

I received your short letter of the 15th. We yesterday received a communication from the C. in C. who is coming down from Umballa towards Delhi and who has ordered me to join him with what available force can be spared from this. It is a small force but good. We expect to move out in two or three days. The Mutineers are still in Delhi where they talk of resisting us. We shall make short work of it if the C. in C. brings with him a train. All here in the highest spirits. Tyrrhitt came in this morning and has been ordered to rejoin his Corps at Jhanzi forthwith. The road to Agra is now open. No native Chief will join the rebels, and they are creeping away to their homes fast. You need have no fear at Mussourie. Nothing but plundering villagers are likely to molest you and a dozen old women with stones could keep them at bay. I have every hope that in a short time all will again be quiet and settled.

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**NOTE.** Lieut., afterwards Major-General Tyrrhitt, never reached Jhansi, but had to return to Meerut, where he rendered signal service as adjutant of the Volunteer Corps, well known as the Khaki Risala, the first unit in India to adopt a khaki uniform.

Even at this stage Wilson appreciated the problem aright. Delhi was a fortress of great strength, and everything depended on adequate preparation. As an Artilleryman he knew well enough that the bulk of the reserve of ordnance was lost and that the assemblage of the essential train would be no trifling matter.

**XIII.***Meerut,**21st. May 1857.*

Yesterday evening I received your dear letters of the 16th and 17th. It is a very good measure the having disarmed the native inhabitants. If you only have supplies I look on your position as safe, but you should concentrate on Landour. I wonder who could have amused you with the Express stating we had taken Delhi. It will have had one good effect that of raising your spirits for a time at least. It is most extraordinary we hear nothing from the C. in C. Private letters are constantly received both from Umballa & Kurnaul, but no communication from him. I fear there is a sad want of good heads at Hd. Qtrs. at this crisis. We hear from Ferozepore that one native Regiment has been disarmed, the other cut up. Not a single native Regiment is, I believe, to be trusted, and unless the European force is concentrated and that soon, I see no end to our disasters. These rascals without a head, whatever their members may be, would not stand a moment. All well and quiet here ready to move in force at a moments notice, though not so well equipped as should be. We are badly off for carriage and have great difficulty in procuring more. Hogge is doing well.

I am so glad to hear you have removed to Landour and are among such kind friends.

**NOTE.** Already Wilson was beginning to feel the strain of inactivity. Mr. Colvin, the Lieutenant-Governor at Agra, was constantly urging the Meerut force to do something. Finding that his efforts to instil activity into the General were unavailing, he addressed Wilson direct, to the great annoyance of

Hewitt, who remonstrated at this departure from the proper channel. Nevertheless Colvin continued to telegraph and to write to Wilson, thereby putting the latter into a most embarrassing position, to which he was fully alive. Colvin urged an advance on Bulandshahr, but Wilson repeatedly pointed out that he must conform to the plan of the Commander-in-Chief, and that dispersion of the available force could serve no ultimate purpose.

## XIV.

*Meerut,**22nd. May 1857.*

A few lines to tell you that we are all well here as yet. Capt. Hodgson 1st Fuziliers arrived this morning, with a communication from the C. in C. that he leaves Umballa on the 23rd for Kurnaul. As soon as I hear the date of his leaving the latter, I move out with my small force to join him on the Jumna at Baghput. When united we move on Delhi and I trust shall make an example of these villains. The civilians and others from Bolundshur came in this morning. The station burnt and the treasure looted. Allyghur they report to be gone also. It is necessary that something is done to check these marauders and that soon. This is a most anxious time and I find the responsibility thrown on me heavy. Pray for me that I may do my duty well and to God's glory. We are all in good spirits and heart ready for everything and only anxious to meet these murderers, but there is no denying we have heavy odds against us and we are in great straits. Most of the ladies keep up their spirits wonderfully. Miss Whish shows them a capital example.

NOTE. The messenger was William Hodson who had commanded the Guides and subsequently had been sent back to his old regiment. His marked ability had enabled him to survive official displeasure, and he was at this time employed in the Department of the Quartermaster General, in the Intelligence Branch. Ordered to raise a body of irregular horse at Ambala, went on to Karnal, where he received the most valuable assistance from the Raja of Jind. From Karnal he rode seventy-six miles into Meerut, had a bath, breakfast and a little sleep, before riding back with the reply message to General Anson.

Wilson had been entrusted with the command of the Meerut field force and this accounts for his fresh anxiety. The order to move had a most inspiring effect on the garrison and great activity prevailed. Hervey Greathed, the Commissioner did much to procure the sorely needed transport, and to his delight was appointed by Colvin as political agent at Delhi, attached to the field force, a position which he held till his death from cholera, on the eve of victory.

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## XV

*Meerut,**23rd. May, 1857.*

We are all well and in good heart here ready to meet the Mutineers if they move out to attack us from Delhi, which they threaten, or to join the C. in C. with a small but select Force, as soon as ordered. I have a very responsible position here, but hope to be able to meet any emergency that may happen. Thank God, my health remains good, and I live in the hope that the Lord will not allow the heathen to triumph over us, and that we may some day be reunited. We have a hard struggle before us there can be no doubt.

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I can send you little news as our Dawks are cut off in all directions, but the C. in C. should be at Kurnaul on the 26th and I await his orders to move out to join him on the Jumna at Baghput. We shall probably move 2 or 3 days after he gets to Karnaul.

NOTE.—Wilson was correct in his anticipation. The Commander-in-Chief, left Ambala for Karnal on the 25th May, but thereafter more than a week elapsed before any further move was possible, owing to the difficulties encountered in carrying out even a patchwork mobilisation.

## XVI.

*Meerut,**24th. May, 1857.*

On the chance of one of many of my letters getting to you, I send a few lines to say we are all well here waiting anxiously for orders from the Chief to move forward. Reports are very conflicting, but the general opinion is, that the mutineers failing to get any Native Chiefs to join them are dispersing and sneaking away whenever they can, and that when we arrive before Delhi we shall find they have all vanished. This will be a great disappointment, but sooner or later they will be hunted down and meet their deserts. The last letter I received from you was dated 17th. and I am very anxious to see your dear handwriting again. God grant you are all safe and well. I have written daily but fear few of my letters reach you.

## XVII

*Meerut,**25th. May 1857.*

Still no letter from you since the 17th. I am very anxious about you, and hope by some means or other I shall hear soon. We are still remaining as we were, waiting for orders from the C. in C. who does not appear very anxious to send us any. My force is very anxious to be doing something and if we do not receive instructions soon, I think I shall move in the direction of Delhi. The responsibility of doing so without orders is very great, and it is a great shame that we should be left without any communication from Hd. Quarters. The mutineers we hear are fighting among themselves, and building up the gateways, they shew no wish to come and attack us. Our Force is keeping in health and ready for anything. John works hard, but is none the worse for it. I only pine for one line from your dear hand to say all are well.

## XVIII

Since sending off my former letter to you of today I have received your dear letters of the 18th, 19th & 20th and 21st, all in a lump. I cannot tell you what pleasure it has given me and what a relief it has been to hear from you again. Poor Willoughby there is no hope for. He escaped from Delhi, but was cut up in a village. We have just sent off an express to the Com. in Ch. asking permission to move forward with my force towards Delhi to keep the country quiet and prevent the escape of the rebels through the Allyghur district. I hope we shall get a reply by tomorrow night. We are all fretting at being kept here.

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We last evening took away the arms from the remains of the 11th. Regt. who stayed true or came back, but have been only a thorn in our side as their officers objected to serve with

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them, they, the Officers, with 2 or 3 exceptions, have behaved very ill. The men are paid up and furlough given them. Hogge getting well fast.

NOTE.—Here we see the first indication of the policy so strongly urged by the Lieutenant Governor and the Commissioner, whose chief idea was that of localising the trouble. Had the Meerut Brigade been able to move, much might have been done by holding the approach to Delhi, though there would have been a distinct risk in isolating a small force, liable to attack in front and rear.

## XIX

*Meerut,*

*26th May, 1857.*

I am very glad you have received so many of my letters and that they have comforted you so much. We are in statu quo here, but I hope tomorrow to receive permission from the C. in C. to move forward to Ghazee deen Nuggur, if so I shall start either tomorrow on the next night. We cannot get in camels but have plenty of Hackeries, not the best sort of carriage for a movable column as ours will be but we must make the best of it. My force are all behaving well and nobly, and have, I believe, as much confidence in me as I have in them. It makes it quite easy to find you are keeping up so brave a heart.

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NOTE.—The devoted service of the postal runners throughout the Mutiny forms a bright feature to which insufficient attention has been paid. In the case of the Wilsons it is amazing that hardly a letter was lost. The postal service suffered much at the hands of the rebels, but if it could be written, the complete story of the post-office would reveal a wealth of dogged heroism.

## XX

*Meerut,*

*27th May 1857.*

I move to night with my force towards Ghazee deen Nuggur from which I shall join the Chief's Camp at Baghput, when he moves down. I hope he will be quick about it, but I fear he will

not be there before the 6th Prox. if then. All well. I shall feel quite free when I get away from the old General, he is a sad stumbling-block.

**NOTE.** No message reached Meerut till the morning of the 26th, the day on which General Anson was attacked with cholera at Karnal. The difficulty of accurate cooperation was great, and the consequent isolation of the Meerut column was keenly felt. The Brigade consisted of two Squadrons of the Carabiniers under Colonel Custance, a wing of the Light Field Battery, under Lieutenant Scott, Tombs' troop of Horse Artillery, two 18 pounder guns, two companies Indian Sappers, a small body of Irregular Horse, about 50 in all, and 6 Companies of the 60th Rifles.

Archdale Wilson, though the soul of loyalty, could not refrain from the bitter cry of the Indian Army. To quote Malleeson, the Divisional Commander "was an old Company's Officer, who had risen to high rank by the slow process of regimental and army promotion, and who in quiet times might have drownded through the years of his employment on the Staff without manifesting any remarkable incapacity for command. The burden of nearly seventy years was aggravated by the obesity of his frame and the inertness of his habits. But he was a kindhearted, hospitable man, liked by all, and by some respected."

Wilson, who was stigmatised by some as too old at 54, after enduring the exposure of a summer at Delhi under the most trying circumstances, had much reason to complain of the behaviour of his superior at Meerut. General Hewitt afterwards asserted that the Brigadier, being in command of the station, was responsible for the movement, or rather the alleged inaction, of the troops at that centre. But when as, Malleeson observes, "a General Officer, commanding a division of the army, thus shifts the responsibility on to the shoulders of a subordinate, he virtually seals his own condemnation." Wilson was afterwards called upon for a formal explanation of the lack of activity displayed by the Meerut garrison, and clearly pointed out that under Regulations he could not have ignored the Major-General. With characteristic honesty and loyalty, not only to the Divisional Commander, but to his Chief, he stated:— "I may or may not have been wrong in offering the opinion I did to the Major-General. I acted to the best of my judgment at the time, and from the uncertainty regarding the direction taken by the fugitives, I still believe I was right. Had the Brigade blindly followed in the hope of finding the fugitives, and the remaining portion of the cantonment been thereby sacrificed, with all our sick, women and children, and valuable stores, the outcry against those in command at Meerut would have been still greater than it has been."

More than that, Wilson was in charge of Meerut, while Hewitt commanded a large area, including Delhi. Ignoring this patent fact, the General thought only of the safety of the place in which he himself resided, with effects which were disastrous, but possibly inevitable.



## ***The Mutiny day by day.***

It is clear from his succeeding remarks that Wilson saw the obvious defect; of the General and that in his heart he would have preferred another course but even if that course had been adopted, the radius of action would have been pitifully small, thanks to a policy which involved the sacrifice of everything that an army needs to mere strength in bayonets. The Afghani and Sikh wars were far from being ancient history at the time, but on their conclusion the efforts at reform had been merely spasmodic. Such preparation as had been made was confined to the frontier stations, and the possible requirements of the army in the matter of internal security had hardly been considered.

### XXI

*Mehooddeenpore,  
28th. May 1857.*

We marched last night at 10 o'clock and arrived here, (10 miles) before daybreak. It was a dreadful mess of confusion with the baggage this first march, but I hope we shall do better to-night. Our carriage is chiefly Hackeries, a source of very great trouble and inconvenience. My carriage is Hogge's elephant for my tent and a cart I got from the General which carries mine and Johnson's baggage. We shall be obliged to make 3 marches to Ghazee deen Nuggur.

All well but rather knocked up from having no sleep last night, and the heat in tents is too much to hope for any during the day. We are all however, in good spirits and hope the Delhi villains will come out to meet us. I have the good Doctor Mackinnon with me.

**NOTE.** The camp was pitched in a dust storm, which materially added to the confusion. The heat and discomfort of a march on an unmetalled road at the end of May can be imagined. Captain Johnson, afterwards General Sir Edwin Johnson, G.C.B., was Assistant Adjutant General of the force. The first camping ground is properly written Mohiuddinpur.

### XXI

*Mooradeennuggur,  
29th. May 1857.*

A few lines to say we arrived here this morning. All well, but the heat yesterday in tents was very trying. John bears up wonderfully, it does not appear to do him any harm. What a blessing he must feel it now to have sent Rose and the

children home. In spite of the heat we have no sick in camp. As we get nearer Delhi intelligence from thence is more difficult to get. Our latest is that the Mutineers are making up their minds to withstand us there, but many are going away eastwards to their homes with plunder.

**NOTE.** The place at which the column halted was Muradnagar. The force that day learned of the news of the death of General Anson at Karnal on the 27th May. His place was taken by Major-General Sir H. Barnard, formerly Commanding the Sirhind Division.

XXII

*Camp Ghazee-deen-Nuggur*  
*30th. May, 1857.*

We found all quiet there on arrival this morning. The mutineers have no force this side the Jumna. They confine themselves to the City, breaking up the bridge of boats at night and restoring it next morning. I hope Barnard's force will move down soon, for I am quite sure no European can long withstand the exposure we are now undergoing. The heat and dust are dreadful and we are all, more particularly the officers, marching in the greatest discomfort, from the Commis't not being able to supply us with carriage. I sit or lie all day with a wet towel round my head. It is the only thing that enables me to bear the heat. My servants are going on pretty well, but they are unused to marching and knock up much more than we do. The nights are pleasant and I am looking forward to a real good night's rest tonight. I have had only one since the outbreak. I received yours of the 27th last night. Don't think that I am giving up. The state of things is unsatisfactory enough no doubt, but I still think by the Blessing of God all will yet be retrieved. I write sometimes when I am tired and weary which no doubt affects the tone of my letters.

\* \* \* \* \*

Half past twelve. You will of course, have heard of the Com. in Chief's death by cholera on the morning of the 27th. It is an unfortunate crisis at this juncture as it may give confidence to the

***The Mutiny day by day.***

mutineers. I have slept in boots ever since the 10th. ready to turn out at a moment's notice, rather disagreeable. I could not take John from his duties, but I have Johnson as my Brigade staff and his 2 Orderly Officers Capt: Russell 54th & Lt. Barchard 20th. N. I.

**NOTE.**—The trials of the march were great. The Commissioner congratulated himself on the fact that in his tent the thermometer was not above 98°, but lamented its consequent popularity. Wilson did not intend to be caught napping, and Greathed remarks:— "I liked the Brigadier's way yesterday when there appeared a chance of a fight; he was ready for anything and any numbers, and wished nothing more."

Ghaziabad, as it is now generally known, offered no resistance. The Commissioner visited the Tahsil and took over the treasure, which had been formally appropriated in the name of Bahadur Shah, under an order bearing his seal: a fact which patently declared the intentions and ambitions of the nominal ruler of Delhi.

**XXIII**

*Camp, 30th. May 1857.*

We were attacked this afternoon at half past four. I am happy to say we gave the villains a complete licking, taking from them 4 heavy guns, 1, 24 and 8 Howrs. Our loss is comparatively small. One officer of the Rifles, Captain Andrews killed, two or three wounded, none severely. I am all right, but dead beat. More to-morrow.

**NOTE.**—This letter gives no account of a brilliant action. The rebels from Delhi had planted some heavy guns on the raised road and a ridge to the south from which they opened fire. The 18-pounders of the Brigade at once replied, while Col. Mackenzie took his Horse Artillery at a gallop to the right, followed by the Carabineers. The 60th advanced on the bridge over the Hindan, crossed the river and were actively engaged. Meanwhile Mackenzie and Tombs, whose bold use of horse artillery was always conspicuous, crossed the stream higher up and took the enemy in flank. The rebels then gave way, some taking refuge in a village which was burnt, while the others were chased ignominiously towards Delhi, leaving all their guns and intrenching tools behind them. Captain Andrews was killed, with several of his men, by the blowing up of an ammunition cart. A rebel sepoy of the 11th N. I. rather than abandon the wagon fired his musket in to the powder, losing his own life but involving many of his pursuers in the explosion.

## XXIV.

*Ghasee Deen Nuggur,**1st. June, 1857.*

I had intended yesterday to give you a detailed account of our action of the 30th instead of which I found myself engaged again all day with the insurgents, and gaining another victory. The rascals attacked me again at 1 p. m. in much larger force than the day before. For two hours the action was one of artillery alone, when seeing their fire slacken, I advanced upon them, and drove them from all their positions. My men were so knocked up by the sun and want of water, that I could not follow them as far as I wished, but they have all gone back to Delhi. This morning there is nothing to be seen of them and I hope they have had enough of it and will leave me alone today. My loss has been heavy and such as I can ill afford with my small force, and another such victory would annihilate me. Oh! that the Kurnaul force would move down to my relief, but I hear nothing of them and I am left with my small force to withstand the whole strength of the insurgents. It was frightful work yesterday. A number of officers and men struck down by the sun, several of the latter dead. The officers are, I believe, doing well, but I have not yet received the report. I have lost Perkins, an invaluable officer, Napier of the Rifles lost his leg, Scott and poor John floored by the sun. The latter came back from the troop for orders, fell upon my bed, from which he was unable to rise again. He is much better this morning and will I trust, soon be all right again. Neither of them have constitutions fit for this sort of work. How I bless God for the constitution He has given me. I am quite well, unscathed.

Mischief has behaved admirably, carried me both days like a trump. Yesterday we were twice in the midst of a shower of grape, and both escaped untarnished to my astonishment. Johnson was struck, but luckily it was only a contusion. All my force have behaved both days nobly. Tombs's Troop have been the admiration of all, but we are nearly out of ammunition for

***The Mutiny day by day.***

guns. I have sent for more to Meerut, but I fear it will not come up till tomorrow.

\* \* \* \* \*

The little Ghoorkhas under my old friend have just marched in and now we are ready for anything only let them give me one day's rest.

**NOTE.**—The battle of Whitsunday was conducted on the hottest day of that year. Not twelve months afterwards Hope Grant in defeating the rebels at Nawabganj lost less than two score killed and wounded, but no fewer than 91 died of "coup-de-soleil" as it was termed. Sun helmets were then unknown.

The rebels had taken up a position on the sandy ridge beyond the Hindan, about a mile from Wilson's advanced posts at the bridge. The enemy pushed forward their guns and opened a heavy fire on the force, which thereupon advanced: the Rifles holding the bridge with two of Scott's guns. During the long artillery duel the sun played havoc with the troops, but when the advance took place, again rendered possible by the bold outflanking tactics of Tombs and Elliot, the men responded well. The rebels on this occasion displayed more caution and took back to Delhi all their guns. The only officer killed was Lieut. H. G. Perkins of the Horse Artillery. The wounded, including Dr. Moore of the Carabineers, were sent into Meerut with the captured guns.

The arrival of the Sirmoor battalion of Gurkhas from Bulandshahr under Major Charles Reid was sensational. It was at first thought that they were an enemy force attempting to take the British in rear. The tired troops again turned out, but only to welcome their supposed opponents with lusty cheers. The Commandant afterwards became General Sir Charles Reid, G.C.B.

The shortage of ammunition was a serious matter. The Ambala column was in an even worse plight, and until supplies arrived from Ferozepore, the artillery had nothing but the ammunition in their wagons, insufficient for a single action. Everything was inadequate, clothing, doolies, transport. Bitter lessons had been learned in the recent past, but they went the way of all lessons and were soon forgotten.

**XXV.**

*Camp Ghazee Deen Nuggur,  
2nd. June, 1857.*

I received yours of the 30th this morning. I was joined yesterday by the Ghoorkhas, this morning by another party of Sappers and expect another company of the 60th tomorrow. I have now a strong force. I intended to have moved forward to-night towards Baghput, but Mr. Greathead sent such a

remonstrance against leaving this post until some measures were taken for preventing the insurgents bolting out through this Dooab. I therefore stand fast waiting further instructions. I think it likely we shall be ordered to join somewhere close above Delhi, if they can bring down the bridge of boats. We have had no disturbance from the rebels since the 31st. they seem to have had enough of attacking me in this position. I sent all my sick, wounded and captured guns into Meerut last night, a great relief to me. I am now ready to fight or move anywhere. John & Scott are all right again. Johnson though stiff from his bruise, not much the worse for it. Mac-kinnon has managed to prick himself while performing an operation, and his arm swelled up, nothing very bad, I hope. I am quite well, but should be glad of a little respite from all this hard work.

NOTE:—On this occasion nothing was lost by the delay. Greathed was undoubtedly right so long as the retention of the Grand Trunk Road did not hamper the action of the field army as a whole, and the field army could not move on Delhi to advantage until overtaken by the improvised siege train which was pursuing its slow and dangerous course from Ferozepore.

## XXVI.

*Camp Ghazee Oo Deen Nuggur,  
3rd. June, 1857.*

You will have learnt before this that your prognostications of something having happened on the 31st have proved true. We have not been disturbed since then, and are now anxiously awaiting instructions for our further movements. Old Hewitt is furious with me and says I shew him great disrespect because I pay no attention to his orders, quite forgetting that I am commanding a Field Force under the orders of General Barnard and therefore independent of him. He is a dreadful old fool, and thinks of nothing but preserving his old carcase from harm. We can get no intelligence of what is going on in Delhi. John is quite well again, but another such day would, I fear, floor him. He is not fit for this sort of work. Johnson is

***The Mutiny day by day.***

also doing well. I do not know what I should do without his assistance. We have not been disturbed by the insurgents since their last trouncing on the 31st. They seem to have found my position is too strong for them.

**NOTE:**—Freed from his former superior, Wilson spoke his mind, and his judgment was backed by others.

The reason for the inaction of the rebels was revealed by a survey of the battle-field, the enemy casualties proving far greater than had been anticipated. The battles of the Hindan served their purpose. Had the mutineers concentrated their efforts to attack the two forces in detail, the results might have been very different.

**XXVII.**

***Camp Ghazee Deen Nuggur,  
4th. June, 1857.***

I received a despatch last night from General Barnard, who does not approve of Mr. Greathead's suggestion for our remaining here, and has ordered me to join him at Rhai via Baghput at once. I move this evening and shall join him on the 7th, if possible. I shall try to do so on the 6th. I take the Ghoorkha regiment with me and shall be strong enough for any attack they may attempt on my march. We hear of no end of defections by the native states we have called in to our assistance, Bhurtpore and others, and it is full time we should concentrate and make a dash at Delhi. My moving from this will expose all the Dooab and leave Meerut exposed, but I do not think there is much to fear for it, as while we are before Delhi they will not dare to detach any large force from thence. We shall have a stirring time for the next 10 or 12 days. God grant we may be successful and strike such a blow as will put down these insurgents at once.

All well in camp.

**NOTE:**—Although the Brigadier persisted in spelling his name wrong, Greathead remained his firm friend. On this occasion, in spite of the fact that the Commissioner had his eye mainly on his own province and his special charge, Wilson fully realised the force of the argument for holding the Hindan bridge.

## XXVIII

*Camp Khekerah,  
6th. June, 1857*

I am dead beat and can only write a few lines. We made a forced march last night from Ghazee deen Nuggur of 20 miles. The road was so bad that my baggage could not get on, and now 1 p. m. a large portion with the Rear Guard are still in the Rear, exposed to this fearful sun. I fear this will fill my hospitals, but I made this march having been promised assistance of 30 or 40 elephants which Capt. McAndrew had brought here for this purpose. He, however, not liking his position, retired this morning at 3 a. m. with the elephants leaving me in the lurch. Hamilton had a fall from his horse last night, which has bruised him considerably. All else well, but two of my staff are at present but lame ducks. I move again to-night to cross the bridge of boats at Baghput.

NOTE:—This letter is wrongly dated. It was written on the 5th June. The force left Ghazlabad at 6-30 p. m. on the 4th, the main body being drawn up to guard the Delhi road till the baggage had crossed the Hindan, the bridge over which was afterwards rendered impassable. It was not till 11 that the troops got under weigh, the sandy road and the numerous ravines causing great delay. The Eastern Jumna Canal was reached at 2 a.m. and then the force, which had left the baggage behind, halted till daybreak, before completing the last eight miles; the worst part, from the Canal to Khekra, being traversed in the blazing sun.

Captain McAndrew was on detached duty with a small party of irregular horse, supplied by the Raja of Jind and sent out to obtain transport from friendly Zamindars. He subsequently was held responsible for allowing the rebels to destroy the Baghput bridge of boats, and was superseded in the command of the Jind troops.

## XXIX.

*Camp right bank of the Jumna opposite,  
Baghput, 6th. June 1857.*

Thanks for sending me the horse and binoculars, they will both be very acceptable. We moved to this, this morning and are now in direct communication with Gen. Barnard who is at Ullipore, one march from Delhi. He has asked me to go on ahead of my



***The Mutiny day by day.***

forces to see him. Greathead and I ride to-night. I suspect Gen: Barnard will attack Delhi as soon as we join.

**NOTE.** The force crossed the bridge of boats about 1 a. m. on the 6th and then bivouacked on the sand. Wilson and the Commissioner rode over to join Sir H. Barnard the following evening, in a violent storm of wind and rain. Greathead was attached to headquarters, while Wilson was ordered to take over the Artillery Brigade. The Meerut column marched later and joined the main force on the morning of the 7th.

**XXX.**

*Camp Allipore,  
7th. June 1857.*

Here we are all assembled and tomorrow morning attack the insurgents, who are intrenched some 4 or 5 miles in our front, and shall, I hope drive them all into Delhi. I am no longer in command of the Meerut Brigade, I am Brig'r Commandant commanding the artillery with the force, I am sorry to separate from my gallant Brigade, which did me such good service, more especially as I give over command to Graves who, between you and me, I do not think very capable of doing them justice. I find myself of great importance here. I am consulted in every case, and I have just come from a consultation in Gen: Barnard's tent, where I had to lay down the plan of tomorrow's operations. I pray God they may be successful in every way. A good strong blow struck tomorrow and these rascals driven into Delhi, will go far to settle the business.

\* \* \* \* \*

This is a very anxious time, for both of us, the more so to me as I find myself so looked up to by all, the responsibility becomes overwhelming. God grant that I may not fail, but act rightly and for the best to put down these cowardly murderers.

We have joined all well and in high spirits, hardly any sick in Hospital, in spite of our hard work. John is quite well again but looking gaunt.

**NOTE.** The combined force in camp at Alipur comprised:—

16 Guns Horse Artillery.

6 Guns Field Artillery.

9th Lancers.  
2 Squadrons, Carabineers.  
6 Companies 60th Rifles.  
H. M. 75th Foot.  
1st Bengal European Fusiliers.  
6 Companies 2nd Bengal European Fusiliers.  
The Sirmoor Battalion.

In addition the siege train, consisting of eight 18 prs., four 8-inch howitzers, four 8-inch mortars and twelve 5.5-inch mortars, had attached to it the Fourth Company of the 6th, European Artillery, and 100 European Artillery recruits.

Brigadier Hope Grant, C. B. of the 9th, Lancers commanded the Cavalry. The 1st Infantry Brigade was allotted to Brigadier St. G. D. Showers of the 2nd Fusiliers, who had succeeded Brigadier Holbifax, the latter having been compelled by ill-health to return to Karnal, where he died. The 2nd Infantry Brigade, under Brigadier Graves, comprised the 60th Rifles, the 2nd Fusiliers and the Sirmoor Battalion.

In round numbers there were in all 600 Cavalry and 2400 Infantry.

Till the position at Delhi was secured, the baggage remained at Alipur with a guard consisting of two guns from Scott's battery, a squadron of the Carabineers, one company of the 2nd Fusiliers and the Jind Contingent.

**XXXI.**

*Camp, Delhi Cantonment,  
8th. June, 1857.*

Just a line today. After very hard fighting we have beat the insurgents into Delhi. We marched at half-past two this morning, came upon them in an intrenched position at Badlee kee Serai, forced them out of it, and had to fight them all the way, 4 or 5 miles into Delhi, through the strongest ground, gardens and villages, that could be imagined. I am all right, so is John. Mischief escaped with a slight graze on his hind fetlock. We have lost poor Chester, a cruel loss, as he was the only efficient man on the staff. My orderly Officer, Captain Russeli is also mortally wounded. An officer of the 75th is also killed. Young Davidson of ours blown up, but I hope will recover. Light wounded slightly in the forehead. The enemy's fire was very heavy and effective. You will see me honourably mentioned in the Despatches.

## ***The Mutiny day by day.***

**NOTE.** The enemy held Badli-ki-Seraf on the Grand Trunk Road, their position being protected in front by a small elevation, on which they had mounted five heavy guns, and on either side by swampy ground intersected with water channels; the canal being nearly parallel to the road on the west, at a distance of about a mile.

Barnard determined on a frontal attack, with a cavalry diversion on the enemy's left flank. The action began at daybreak, and for some time was confined to an artillery duel, in which the rebels, owing to their heavier guns, had some advantage. The 1st Infantry Brigade, led by Colonel Herbert of the 75th, then took the rebel battery holding the road in a magnificent onslaught, while the 2nd Brigade almost at the same time threatened the enemy from our left, and Hope Grant with his cavalry and guns appeared in the enemy's left rear. The rebels then fell back, constantly charged by the cavalry, till they reached the Ridge, beyond the old cantonment. From this stronghold they were ejected, Showers turning the position from Sabzi-mandi, while Graves came up from the left to the Flagstaff Tower.

By driving the rebels into Delhi with a loss of 26 guns\* and over five hundred men, Barnard secured the position which rendered the siege a possibility.

The British loss was heavy, four officers and 47 other ranks being killed, and 130 wounded or missing. In addition to Colonel Chester, the officers killed included Captain C. W. Russell of the 54th N. I. and Lieutenant A. Harrison of the 75th Foot.

Colonel Chester was Adjutant-General of the Bengal Army. He was an officer of great ability and greater popularity, but though admittedly the ablest of those who accompanied General Anson from Simla, he had already 35 years' service, almost entirely on the Staff.

The stern test of a campaign under adverse conditions during the hot weather discovered many weak points and led automatically to extensive weeding. Wilson's estimate of the Staff as a whole was unduly severe, for several officers rose to high distinction. That brilliant cavalry leader, General Sir Hope Grant, K. C. B. may be regarded as one of the many who came into their own during the Mutiny, but the original Staff included such men as William Hodson, Captain H. W. Norman, A. A. G., afterwards Field Marshal Sir Henry Wylie Norman, G.C.B., G.C.M.G., C. S. I., and Colonel A. Becher, Q. M. G. of the Bengal Army, afterwards General Sir Arthur Becher, K. C. B.

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\* N. B. This is the number stated officially, but the totals is double that given by Sir Henry Norman.





## **THE TURKISH ARMY IN GALLIPOLI.**

*I shall go down in history as the man who demonstrated the vulnerability of the British fleet. Unless they bring a large army with them they will be caught in a trap. It seems to me a foolish enterprise.*

*Enver Pasha. 15th March, 1915.*

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In this article it is proposed to show the composition, organisation, and strength of the Turkish Army at certain selected times, namely (1) On the day of the general mobilization of the Turkish Army, (2) At the landing, (3) During the August offensives, (4) At the evacuation, and (5) When the armistice with Turkey was signed.

The information given in the following pages was obtained entirely from Turkish sources, and no British, French, German or other publication has been consulted. The *Order of Battle* of the Turkish army during the August offensives calls for special comment as it was copied from the *original* order of battle which was prepared for and used by the Chief of the Staff of the Gallipoli Army and was lent by him to the writer. It was a work of art in itself, the different units being shown by means of conventional signs, all beautifully executed in various colours on tracing silk, with the description and details of each minutely written beneath it in Turkish. The information contained in this historical document has not been published before.

The five headings given above may now be dealt with in turn.

### **(1). The General Mobilization of the Turkish Army.**

When the imperial *irade* for the general mobilization of the Turkish army came into effect, namely on the 3rd August 1914, there was only a portion of one division in the whole of the Gallipoli peninsula. This was the 9th Division, belonging to the 3rd Army Corps which had its headquarters at Chanak, and consisted of the 25th, 26th, and 27th Regiments. Each of these is definitely stated to have had three battalions, which is worthy of note because the 1/26th Regiment was then at Basrah, and took a leading part in all the early operations in Mesopotamia, its last

### ***Turkish Army in Gallipoli.***

remnants being destroyed at Barjisiyah with the 1st Muretteb Battalion. When the 1/26th was sent to Mesopotamia and lent to the 13th Army Corps it must have been regarded with strange prescience, as being finally lost to the 9th Division, for a 4th battalion was evidently raised to take its place.

It should be noted that the orders for general mobilization were issued at the beginning of August, 1914, so that by the time Turkey entered the lists the mobilization of her Army had been in progress for very nearly three months.

#### **(2). At the landing.**

From the outset the Turks knew that sooner or later the Allies would strike a blow at the vital parts of their empire, namely the Dardanelles. All they could hope was that the British and French would defer their attack until the fine weather had set in. There were Turkish officers at the Ministry of War who regarded our occupation of Basrah merely as a ruse to draw troops away from Constantinople. Indeed, their own attack on the Suez Canal was devised partly with the idea of immobilizing British troops in Egypt. Even when the Allied Fleets were repulsed on the 18th March, it was thought they would return with troops. So on the 25th March, 1915, the 5th Army was raised with the special object of providing a powerful force for the defence of the Dardanelles. The importance attached to the project may be judged from the fact that the nucleus of the force included no less than five pre-war divisions. Turkish mobilization, however, could not make much headway against the current of battle and disease, and the formation of the 5th Army had not greatly progressed when, on the 25th April, that is to say exactly a month after its inception, it was called upon to oppose the Allies' landing.

About that time Turkish troops were continually arriving in the peninsula, but there were no records in the Ministry of War to show what units or portions of units had arrived at any selected moment. For instance the writer was given an order of battle which was said to be that of the 5th Army at the time of the landing, but on investigation it proved to have been made out

some time before that date and had not been corrected up to the 25th April. I find I have endorsed the document with the following remark: "I have not been able to identify the units that opposed the Anzac landing, but they appear to have been Corps troops of the equivalent of a division, belonging to the 3rd A. C.". The Turkish General Staff informed the writer that "before the landing" there were 62,077 combatants in the Gallipoli Army.

As the Allies' ships in the Gulf of Saros could enfilade the Bulair lines, the Turks left them practically unoccupied, but two divisions were kept in reserve near the isthmus in case of a landing there. Both these divisions were posted on the east coast of Gallipoli, one on each side of the Bulair lines; the 5th was at Sharkeui on the Sea of Marmora, well out of range of our guns, and the 7th was just outside the town of Gallipoli where only the fifteen-inch guns of the *Queen Elizabeth* could reach them.

The order of battle at the landing was as follows:—

**European side.****3rd Army Corps.**

7th Division,

In reserve outside Gallipoli town.

9th Division.

Helles area.

19th Division.

Maidos, and along the Boghali road.

Corps troops.

The equivalent of a division, on the West coast of the peninsula.

**Not belonging to****any Army Corps.**

5th Division.

In reserve at Sharkeui, on the Sea of Marmora.

**Independent Cavalry  
Brigade.**

Strung out along the coast of the Gulf of Saros from Examil\* to Enos.



**Turkish Army in Gallipoli.****Asiatic side.****15th Army Corps.**

3rd Division. }

11th Division. }

Round Kum Kale and the  
village of Yeni Shehr.

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\* On some maps this place is shown as Hexamil, or Hexamili; eight miles north-east from Bulair village.

**(3). The August offensive.**

On the 3rd August, 1914, the Turkish army consisted of thirty-eight divisions, namely the 1st to the 18th and the 21st to the 40th. Very few of them had been kept up to their peace establishments, and therefore many thousands of men were required to bring them on to a war footing. During the war a further twenty-five regular and seven Caucasus divisions were formed, yet so great was the wastage that the Turkish army at no time consisted of more than forty-three divisions.

In August 1915, that is to say a year after the general mobilization, the Turkish army consisted of forty-one divisions, with seven others in process of formation. A scrutiny of the sub-joined order of battle will show that the forces then in Gallipoli (the number of combatants in which had been more than doubled since the first landing) amounted to about one half of the Turkish army, and included the whole of the famous old Constantinople, Adrianople, and Gallipoli Army Corps, as well as those of Smyrna, Angora, and Aleppo. In addition to all these crack divisions there were four battalions of the "Fire-extinguishing Regiment", which is probably the best fighting regiment in the Ottoman army. There was also a large number of German officers and men, and some of the coast batteries were manned by picked German bluejackets from the *Goeben* and *Breslau*. Taken as a whole therefore the army in Gallipoli may be justly considered to have been the finest that has ever taken the field in the history of the Turkish Empire. There could be no comparison between it and the Yildirim Army which was opposed to Lord Allenby in Palestine in 1918.

# Turkish Army In Gallipoli.

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## ORDER OF BATTLE OF THE ARMY IN GALLIPOLI.

AUGUST 1915.

### 5th Army.

G. O. C-in-C. ... Marshal Liman Von Sanders.  
Chief of Staff ... Colonel Kiazim Bey.\*

<i>1st Army Corps.</i>	<i>Regts. Nos.</i>	<i>No. of Battns.</i>	<i>Machine Gun Coys.</i>	
				CAVALRY.
1st Division .	70	3	1	1st squadn. 5th Cav. Regt.
	71	3	1	
	124	3		ARTILLERY.
				<i>1st Artillery Regt.</i>
				4 Field Batteries
				2 Mountain Batteries.
				1 Coy. Engineers.
				1 Field Hospital.
2nd Division .	1	3	1	CAVALRY.
	5	3	0	
	6	3	0	2nd Squadn. 5th Cav, Regt.
				ARTILLERY.
				<i>2nd Artillery Regt.</i>
				4 Field Batteries.
				1 Coy. Engineers.
				1 Signal Section.
				1 Pontoon Section.
				1 Field Hospital.

\* Afterwards Major-General Kiazim Pasha.

**Turkish Army in Gallipoli.**

<i>1st Army Corps.</i>	<i>Regts. Nos.</i>	<i>No. of Machine Battns.</i>	<i>Machine Gun Coys.</i>	
3rd Division.	31	3	0	CAVALRY.
	32	3	1	2nd Squadn. 3rd Cav. Regt.
	39	3	0	ARTILLERY. 3rd Artillery Regt. 2 Field Batteries. 1 Coy. Engineers. 1 Signal Section. 1 Field Hospital.

**CORPS TROOPS.**

1 Signal Section.

<i>2nd Army Corps.</i>	<i>Regts. Nos.</i>	<i>No. of Machine Battns.</i>	<i>Machine Gun Coys.</i>	
4th Division	10	4	1	CAVALRY.
	11	4	1	1st Squadn. 3rd Cav. Regt.
	12	4	0	ARTILLERY. 4th Artillery Regt. 5 Field Batteries. 1 Coy. Engineers. 1 Signal Section. 1 Field Hospital.

## **Turkish Army in Gallipoli.**

298

<i>2nd Army Corps.</i>	<i>Regts. No.</i>	<i>No of Battns.</i>	<i>Machine Gun Coy.</i>
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5th Division	13	3	1	CAVALRY.
	14	3	1	3rd Squadn, 3rd Caval. Regt.
	15	3	1	ARTILLERY. 5th Artillery Regt.
				4 Field Batteries.
				2 Mountain Batteries.
				1 Coy. Engineers.
				1 Signal Section.
				1 Pontoon Section.
				1 Field Hospital.

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6th Division .	16	4	1	CAVALRY.
	17	4	1	5th Squadn. 3rd Caval. Regt.
	18	4	1	ARTILLERY. 6th Artillery Regt.
				4 Field Batteries.
				2 Mountain Batteries.

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### CORPS TROOPS.

4th Squadron, 3rd Cavalry Regiment.  
 1 Coy. Engineers.  
 1 Signal Section.

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**Turkish Army in Gallipoli.**

<i>3rd Army Corps.</i>	<i>Regts. Nos.</i>	<i>No. of Battns.</i>	<i>Machine Gun Coys.</i>	
7th Division	19	3	1	CAVALRY.
	20	3	0	2nd Squadn. 4th Cav. Regt.
	21	3	1	ARTILLERY. 7th Artillery Regt. 4 Field Batteries. 2 Mountain Batteries. 1 Coy. Engineers. 1 Field Hospital.
8th Division	22	3	1	CAVALRY. 3rd squadn. 4th Cav Regt.
	23	3	1	ARTILLERY. 8th Artillery Regt. 4 Field Batteries. 2 Mountain Batteries. 1 Coy. Engineers. 1 Field Hospital.
	24	3	1*	
9th Division	25	3	1	CAVALRY. 4th squadn. 4th Cavl. Regt.
	26	3	1*	ARTILLERY. 9th Artillery Regt. 4 Field Batteries. 2 Mountain Batteries. 1 Coy. Engineers. 1 Field Hospital.
	27	3	1	
CORPS TROOPS.				
1st squadn 4th Cavalry Regiment.				
1 Signal Section.				
1 Coy. Engineers.				
2 Pontoon Section.				

\*Captured from British.

# Turkish Army in Gallipoli.

300

## Divisions not

belonging to Regts. No. of Machine  
an Army Nos. Battns. Gun Coys.  
Corps.

10th Division	28	3	1	CAVALRY.
	29	3	1	None.
	30	3	0	ARTILLERY.
				10th Artillery Regt.
				4 Field Batteries.
				1 Coy. Engineers.
				1 Field Hospital.
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11th Division	33	3	1	CAVALRY.
	126	3	0	2nd Squadn. 12th Cav.
	127	3	1*	Regt.
				ARTILLERY.
				11th Artillery Regt.
				4 Field Batteries.
				2 Mountain Batteries.
				1 Coy. Engineers.
				1 Signal Section.
				1 Field Hospital.
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12th Division	34	4	0	CAVALRY.
	35	4	0	4th Squadn. 12th Cav.
	36	4	1	Regt.
				ARTILLERY.
				12th Artillery Regt.
				4 Field Batteries.
				1 Coy. Engineers.
				1 Field Hospital.

\* Captured from British.

**Turkish Army in Gallipoli.**

<i>5th Army Corps.</i>	<i>Regts. Nos.</i>	<i>No. of Machine Battns. Gun Coys.</i>		
13th Division	4	4	1	CAVALRY.
	46	4	0	1st Squadrn. 11th Cav. Regt.
	60	4	0	ARTILLERY. 13th Artillery Regt. 4 Field Batteries. 2 Mountain Batteries (not q. f.) 1 Coy. Engineers. 1 Field Hospital.
14th Division	41	4	1	CAVALRY.
	42	4	0	2nd Squadrn. 11th Cav. Regt.
	55	4	1	ARTILLERY. 14th Artillery Regt. 4 Field Batteries. 1 „ „ (not q. f.) 1 Coy. Engineers. 1 Field Hospital.
15th Division	38	4	1*	CAVALRY.
	45	4	1	6th Squadrn. 11th Cav. Regt.
	56	4	0	ARTILLERY. 15th Artillery Regt. 4 Field Batteries. 2 Mountain „ (not q. f.) 1 Coy. Engineers. 1 Signal Section. 1 Field Hospital.

**CORPS TROOPS.**

4th Squadron, 11th Cavalry Regiment.  
1 Company Engineers.  
1 Signal Section.

\* Captured from British.

# Turkish Army in Gallipoli.

302

## Divisions not

belonging to Regts. No. of Machine  
an Army Nos. Battns. Gun Coys.  
Corps.

				CAVALRY.
16th Division	47	3	0*	1st Squadn. 27th Cav.
	48	3	1*	Regt.
	125	3	1	Hotchkiss.
				ARTILLERY.
				16th Artillery Regt.
				2 Field Batteries.
				2 Mountain Batteries.
				(not q. f.)
				1 Coy. Engineers
				1 Signal Section.
				1 Field Hospital..
19th Division	57	3	1	CAVALRY,
	72	3	2*	5th Squadn 4th Cav.
	77	3	0	Regt.
*1 Hotchkiss and 1				ARTILLERY.
captured from British.				39th Artillery Regt.
				2 Field Batteries.
				2 Field Batteries
				(not q. f.)
				2 Mountain Batteries.
				1 Coy. Engineers.
				1 Field Hospital.
20th Division	61	4	1	CAVALRY.
	62	4	0	3rd Squadn. 12th Cav.
	63	4	0	Regt.
				ARTILLERY.
				20th Artillery Regt.
				4 Field Batteries.
				1 Coy. Engineers.
				1 Field Hospital.

\*Captured from British.



**Turkish Army in Gallipoli.**

*Divisions not  
belonging to  
an Army  
Corps.*

	<i>Regts. Nos.</i>	<i>No. of Battns.</i>	<i>Machine Gun Coys.</i>	
25th Division	73	4	1	CAVALRY.
	74	4	0	1st Squadn. 29th Cav.
	75	4	0	Regt.
				ARTILLERY.
				25th Artillery Regt.
				2 Field Batteries.
				1 Coy. Engineers.
				1 Signal Section.
				1 Field Hospital.

*6th Army Corps.*

24th Division	2	4	1	CAVALRY.
	58	4	0	2nd Squadn. 27th Cav.
	143	4	0	Regt.
				ARTILLERY.
				24th Artillery Regt.
				4 Field Batteries.
				2 Mountain Batteries
				(not q. f.)
				1 Coy. Engineers.
				1 Field Hospital.

26th Division	59	4	0	CAVALRY.
	76	4	1	3rd Squadn. 27th Cav.
	78	4	1	Regt.
				ARTILLERY
				26th Artillery Regt.
				2 Field Batteries.
				2 Mountain Batteries
				(not q. f.)
				1 Coy. Engineers.
				1 Signal Section.

**CORPS TROOPS.**

4th Squadron, 27th Cavalry Regiment.  
1 Mountain Battery.  
1 Coy. Engineers.  
1 Signal Section.

# Turkish Army in Eastland.

306

Divisions not

in

belonging to Regt. Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

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587th, 588th, 589th, 590th, 591st, 592nd, 593rd, 594th, 595th, 596th, 597th, 598th, 599th, 600th, 601st, 602nd, 603rd, 604th, 605th, 606th, 607th, 608th, 609th, 610th, 611st, 612nd, 613th, 614th, 615th, 616th, 617th, 618th, 619th, 620th, 621st, 622nd, 623rd, 624th, 625th, 626th, 627th, 628th, 629th, 630th, 631st, 632nd, 633rd, 634th, 635th, 636th, 637th, 638th, 639th, 640th, 641st, 642nd, 643rd, 644th, 645th, 646th, 647th, 648th, 649th, 650th, 651st, 652nd, 653rd, 654th, 655th, 656th, 657th, 658th, 659th, 660th, 661st, 662nd, 663rd, 664th, 665th, 666th, 667th, 668th, 669th, 670th, 671st, 672nd, 673rd, 674th, 675th, 676th, 677th, 678th, 679th, 680th, 681st, 682nd, 683rd, 684th, 685th, 686th, 687th, 688th, 689th, 690th, 691st, 692nd, 693rd, 694th, 695th, 696th, 697th, 698th, 699th, 700th, 701st, 702nd, 703rd, 704th, 705th, 706th, 707th, 708th, 709th, 710th, 711st, 712nd, 713th, 714th, 715th, 716th, 717th, 718th, 719th, 720th, 721st, 722nd, 723rd, 724th, 725th, 726th, 727th, 728th, 729th, 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873rd, 874th, 875th, 876th, 877th, 878th, 879th, 880th, 881st, 882nd, 883rd, 884th, 885th, 886th, 887th, 888th, 889th, 890th, 891st, 892nd, 893rd, 894th, 895th, 896th, 897th, 898th, 899th, 900th, 901st, 902nd, 903rd, 904th, 905th, 906th, 907th, 908th, 909th, 910th, 911st, 912nd, 913th, 914th, 915th, 916th, 917th, 918th, 919th, 920th, 921st, 922nd, 923rd, 924th, 925th, 926th, 927th, 928th, 929th, 930th, 931st, 932nd, 933rd, 934th, 935th, 936th, 937th, 938th, 939th, 940th, 941st, 942nd, 943rd, 944th, 945th, 946th, 947th, 948th, 949th, 950th, 951st, 952nd, 953rd, 954th, 955th, 956th, 957th, 958th, 959th, 960th, 961st, 962nd, 963rd, 964th, 965th, 966th, 967th, 968th, 969th, 970th, 971st, 972nd, 973rd, 974th, 975th, 976th, 977th, 978th, 979th, 980th, 981st, 982nd, 983rd, 984th, 985th, 986th, 987th, 988th, 989th, 990th, 991st, 992nd, 993rd, 994th, 995th, 996th, 997th, 998th, 999th, 1000th

Corps.

42nd Division

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th	27th	28th	29th	30th	31st	32nd	33rd	34th	35th	36th	37th	38th	39th	40th	41st	42nd	43rd	44th	45th	46th	47th	48th	49th	50th	51st	52nd	53rd	54th	55th	56th	57th	58th	59th	60th	61st	62nd	63rd	64th	65th	66th	67th	68th	69th	70th	71st	72nd	73rd	74th	75th	76th	77th	78th	79th	80th	81st	82nd	83rd	84th	85th	86th	87th	88th	89th	90th	91st	92nd	93rd	94th	95th	96th	97th	98th	99th	100th
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1st Division

- 1st Division
- 7th Cavalry Regiment
- 13th Cavalry Regiment
- Battalion of Horse Artillery
- 1 Engineer Regiment
- 1 Field Hospital

**Turkish Army in Gallipoli.**

*Divisions not  
belonging to  
an Army  
Corps.*

	<i>Regts. Nos.</i>	<i>No. of Battns.</i>	<i>Machine Gun Coys.</i>	
25th Division	73	4	1	CAVALRY.
	74	4	0	1st Squadn. 29th Cav.
	75	4	0	Regt.
				ARTILLERY.
				25th Artillery Regt.
				2 Field Batteries.
				1 Coy. Engineers.
				1 Signal Section.
				1 Field Hospital.

**6th Army Corps.**

24th Division	2	4	1	CAVALRY.
	58	4	0	2nd Squadn. 27th Cav.
	143	4	0	Regt.
				ARTILLERY.
				24th Artillery Regt.
				4 Field Batteries.
				2 Mountain Batteries (not q. f.)
				1 Coy. Engineers.
				1 Field Hospital.

26th Division	59	4	0	CAVALRY.
	76	4	1	3rd Squadn. 27th Cav.
	78	4	1	Regt.
				ARTILLERY
				26th Artillery Regt.
				2 Field Batteries.
				2 Mountain Batteries (not q. f.)
				1 Coy. Engineers.
				1 Signal Section.

**CORPS TROOPS.**

4th Squadron, 27th Cavalry Regiment.  
1 Mountain Battery.  
1 Coy. Engineers.  
1 Signal Section.

## **Turkish Army In Gallipoll.**

304

### *Divisions not*

<i>belonging to</i>	<i>Regts.</i>	<i>Nos. of Machine</i>	
<i>an Army</i>	<i>Nos.</i>	<i>Battns.</i>	<i>Gun Coys.</i>
<i>Corps.</i>			

---

42nd Division	65	4	0	CAVALRY.
	66	4	1	
	123	4	0	74th Squadn. 12th Cav. Regt.

### ARTILLERY.

#### *42nd Artillery Re gt.*

3 Field Batteries (not  
q. f.)

3 Mountain Batteries  
(not q. f.)

1 Coy. Engineers.

1 Signal Section.

### INDEPENDENT CAVALRY BRIGADE.

1st Lancers with a Machine Gun Coy.

7th Cavalry Regiment.

13th Cavalry Regiment with a Machine Gun Coy.

Battery of Horse Artillery.

1 Engineers Section.

1 Field Hospital.

**Turkish Army in Gallipoli.****ARMY TROOPS OF THE 5th ARMY.**

64th Regiment, 3 battalions, 1 machine gun company\*.

136th Regiment, 4 battalions.

The Gallipoli Gendarme Battalion.

„ Broussa „ „

„ Karasi „ „

„ Dardanelles „ „

Constantinople Fire-Extinguishing Regiment. Four Battalions, namely the 1st, 3rd, 5th, and 6th.

Adrianople Fortress Engineer Battalion; 4 companies.

German Engineer Company.

3 Field Batteries (not Q. F.)

1 Platoon of Muhafiz Infantry.

2 troops of Muhafiz Cavalry.

1 Signal Company.

1 Wireless Section.

1 Flying Corps Company.

\*Captured from British. In 1916 this regiment joined the 14th Division. The 136th Regiment subsequently went to the 53rd Division.

**(4). The evacuation.**

The order of battle given under this heading shows the Turkish forces in Gallipoli immediately after the evacuation of Anzac and Suvla, but before the transfer of divisions to the Southern, or Sedd-el-Bahr Group. About this time seven Turkish divisions were sent away from the peninsula, one before and the remainder immediately after the Anzac and Suvla evacuations. Six others were transferred from the Anafarta and Northern groups to the Southern Group as soon as the west coast was found to be clear of British troops.

The divisions sent out of the peninsula were the 2nd, 3rd, 4th, 5th, 10th, 13th, and 26th. It is instructive to note where these divisions were sent. The 2nd went to the 6th Army in Mesopotamia, the 3rd to the 4th Army on the Turco-Egyptian frontier; the 4th, 5th and 10th went to the 2nd Army in the

Caucasus; the 13th was sent to quell the Kurdish rebellion in Dersim; and the 26th went to the Dobruja front.

Soon after the final evacuation, six more divisions, namely the 1st, 7th, 8th, 9th, 11th, and 12th were sent to the Caucasus; one more, the 6th, went to Mesopotamia; one more, the 14th, to Egypt; two more, the 15th, and 25th, to the Dobruja front the 16th to Panderma and Smyrna; the 19th, to Keshan and then to Galicia; the 20th, to Keshan; the 24th, to Chanak; whilst the 42nd joined the 14th Army Corps.

As we have already seen, the operations in Gallipoli had immobilized through many eventful months more than half the Turkish Army and, moreover, incomparably the better half. Their total casualties had amounted to 2,160 officers and nearly 287,000 other ranks, which figures in view of the undoubtedly low incidence of typhus and dysentery, are amazingly high.\* One can therefore readily appreciate the sense of relief which, inspite of the great opportunities they had allowed to slip through their fingers, the Turks undoubtedly felt when the Gallipoli operations came to an end.

In compiling the following order of battle it was found that opinions at the Ministry of War varied on one or two points; nor was the writer able to identify the, "unnumbered" division of the 3rd A. C. which will be found mentioned:

Order of battle of the 5th Army after the Anzac and Suvla evacuation, but before the transfer of divisions to the Sedd-el-Bahr area.

*Saros Group.*

17th Army Corps.—25th Division.	} Watching the Coast from the north of Suvla to Enos.
Independent.	
Cavalry Brigade.	

---

\*The question of Turkish casualties in Gallipoli was raised by the writer in November 1918. In reply the Turkish General Staff, after exhaustive investigation, submitted the figures given above.

**Turkish Army in Gallipoli.**

*1st Army    Regts.    No. of Machine  
Corps.       Nos.    Battns. Gun Coys.*

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3rd Division.	31	3	0	CAVALRY.
	32	3	1	2nd Squadn. 3rd Cav. Regt.
	39	3	0	ARTILLERY. 3rd Artillery Regt. 2 Field Batteries. 1 Coy. Engineers. 1 Signal Section. 1 Field Hospital.

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**CORPS TROOPS.**

1 Signal Section.

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*2nd Army    Regts.    No. of Machine  
Corps.       Nos.    Battns. Gun Coys.*

---

4th Division	10	4	1	CAVALRY.
	11	4	1	1st Squadn. 3rd Cav. Regt.
	12	4	0	ARTILLERY. 4th Artillery Regt. 5 Field Batteries. 1 Coy. Engineers. 1 Signal Section. 1 Field Hospital.

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## **Turkish Army in Gallipoli.**

298

<i>2nd Army Corps.</i>	<i>Regts. No.</i>	<i>No of Battns.</i>	<i>Machine Gun Coy.</i>
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5th Division	13	3	1	CAVALRY.
	14	3	1	3rd Squadn, 3rd Cav. Regt.
	15	3	1	ARTILLERY. 5th Artillery Regt.
				4 Field Batteries.
				2 Mountain Batteries.
				1 Coy. Engineers.
				1 Signal Section.
				1 Pontoon Section.
				1 Field Hospital.

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6th Division .	16	4	1	CAVALRY.
	17	4	1	5th Squadn. 3rd Caval. Regt.
	18	4	1	ARTILLERY. 6th Artillery Regt.
				4 Field Batteries.
				2 Mountain Batteries.

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### CORPS TROOPS.

4th Squadron, 3rd Cavalry Regiment.  
1 Coy. Engineers.  
1 Signal Section.

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**Turkish Army in Gallipoli.**

<i>3rd Army Corps.</i>	<i>Regts. Nos.</i>	<i>No. of Battns.</i>	<i>Machine Gun Coys.</i>	
7th Division	19	3	1	CAVALRY.
	20	3	0	2nd Squadn. 4th Cav. Regt.
	21	3	1	ARTILLERY. <i>7th Artillery Regt.</i> 4 Field Batteries. 2 Mountain Batteries. 1 Coy. Engineers. 1 Field Hospital.
8th Division	22	3	1	CAVALRY. 3rd squadn. 4th Cav. Regt.
	23	3	1	
	24	3	1*	ARTILLERY. <i>8th Artillery Regt.</i> 4 Field Batteries. 2 Mountain Batteries. 1 Coy. Engineers. 1 Field Hospital.
9th Division	25	3	1	CAVALRY. 4th squadn. 4th Cavl. Regt.
	26	3	1*	
	27	3	1	ARTILLERY. <i>9th Artillery Regt.</i> 4 Field Batteries. 2 Mountain Batteries. 1 Coy. Engineers. 1 Field Hospital.
CORPS TROOPS.				
1st squadron 4th Cavalry Regiment.				
1 Signal Section.				
1 Coy. Engineers.				
2 Pontoon Section.				

\*Captured from British.

## **Turkish Army in Gallipoli.**

300

### *Divisions not*

*belonging to Regts. No. of Machine  
an Army Nos. Battns. Gun Coys.  
Corps.*

---

10th Division	28	3	1	CAVALRY.
	29	3	1	None.
	30	3	0	ARTILLERY.
				<i>10th Artillery Regt.</i>
				4 Field Batteries.
				1 Coy. Engineers.
				1 Field Hospital.
<hr/>				
				CAVALRY.
11th Division	33	3	1	2nd Squadrn. 12th Cav.
	126	3	0	Regt.
	127	3	1*	
				ARTILLERY.
				<i>11th Artillery Regt.</i>
				4 Field Batteries.
				2 Mountain Batteries.
				1 Coy. Engineers.
				1 Signal Section.
				1 Field Hospital.
<hr/>				
12th Division	34	4	0	CAVALRY.
	35	4	0	4th Squadrn. 12th Cav.
	36	4	1	Regt.
				ARTILLERY.
				<i>12th Artillery Regt.</i>
				4 Field Batteries.
				1 Coy. Engineers.
				1 Field Hospital.

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\* Captured from British.

**Turkish Army in Gallipoll.**

<i>5th Army Corps.</i>	<i>Regts. Nos.</i>	<i>No. of Machine Battns. Gun Coys.</i>		
13th Division	4	4	1	CAVALRY.
	46	4	0	1st Squadn. 11th Cav. Regt.
	60	4	0	ARTILLERY. 13th Artillery Regt. 4 Field Batteries. 2 Mountain Batteries (not q. f.) 1 Coy. Engineers. 1 Field Hospital.
14th Division	41	4	1	CAVALRY.
	42	4	0	2nd Squadn. 11th Cav. Regt.
	55	4	1	ARTILLERY. 14th Artillery Regt. 4 Field Batteries. 1 " " " " (not q. f.) 1 Coy. Engineers. 1 Field Hospital.
15th Division	38	4	1*	CAVALRY.
	45	4	1	6th Squadn. 11th Cav.
	56	4	0	Regt. ARTILLERY. 15th Artillery Regt. 4 Field Batteries. 2 Mountain " (not q.f.) 1 Coy. Engineers. 1 Signal Section. 1 Field Hospital.

**CORPS TROOPS.**

4th Squadron, 11th Cavalry Regiment.  
1 Company Engineers.  
1 Signal Section.

\* Captured from British.

# Turkish Army in Gallipoli.

302

## Divisions not

belonging to Regts. No. of Machine  
an Army Nos. Battns. Gun Coys.  
Corps.

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CAVALRY.			
16th Division	47	3	0* 1st Squadn. 27th Cav.
	48	3	1* Regt.
	125	3	1 Hotchkiss.

## ARTILLERY.

*16th Artillery Regt.*  
2 Field Batteries.  
2 Mountain Batteries.  
(not q. f.)  
1 Coy. Engineers  
1 Signal Section.  
1 Field Hospital.

---

19th Division	57	3	1	CAVALRY,
	72	3	2*	5th Squadn 4th Cav.
	77	3	0	Regt.

\*1 Hotchkiss and 1

captured from British.

## ARTILLERY.

*39th Artillery Regt.*  
2 Field Batteries.  
2 Field Batteries  
(not q. f.)  
2 Mountain Batteries.  
1 Coy. Engineers.  
1 Field Hospital.

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20th Division	61	4	.1	CAVALRY.
	62	4	0	3rd Squadn. 12th Cav.
	63	4	0	Regt.

## ARTILLERY.

*20th Artillery Regt.*  
4 Field Batteries.  
1 Coy. Engineers.  
1 Field Hospital.

---

\*Captured from British.

**Turkish Army in Gallipoli.**

*Divisions not  
belonging to  
an Army  
Corps.*

	<i>Regts. Nos.</i>	<i>No. of Battns.</i>	<i>Machine Gun Coys.</i>	
25th Division	73	4	1	CAVALRY.
	74	4	0	1st Squadrn. 29th Cav.
	75	4	0	Regt.
				ARTILLERY.
				25th Artillery Regt.
				2 Field Batteries.
				1 Coy. Engineers.
				1 Signal Section.
				1 Field Hospital.

*6th Army Corps.*

24th Division	2	4	1	CAVALRY.
	58	4	0	2nd Squadrn. 27th Cav.
	143	4	0	Regt.
				ARTILLERY.
				24th Artillery Regt.
				4 Field Batteries.
				2 Mountain Batteries
				(not q. f.)
				1 Coy. Engineers.
				1 Field Hospital.

26th Division	59	4	0	CAVALRY.
	76	4	1	3rd Squadrn. 27th Cav.
	78	4	1	Regt.
				ARTILLERY
				26th Artillery Regt.
				2 Field Batteries.
				2 Mountain Batteries
				(not q. f.)
				1 Coy. Engineers.
				1 Signal Section.

**CORPS TROOPS.**

4th Squadron, 27th Cavalry Regiment.  
1 Mountain Battery.  
1 Coy. Engineers.  
1 Signal Section.

## **Turkish Army In Gallipoli.**

304

### *Divisions not*

<i>belonging to</i>	<i>Regts.</i>	<i>Nos. of Machine</i>	
<i>an Army</i>	<i>Nos.</i>	<i>Battns.</i>	<i>Gun Coys.</i>
<i>Corps.</i>			

---

42nd Division	65	4	0	<b>CAVALRY.</b>
	66	4	1	
	123	4	0	74th Squadn. 12th Cav. Regt.

### **ARTILLERY.**

#### *42nd Artillery Re gt.*

3 Field Batteries (not  
q. f.)

3 Mountain Batteries  
(not q. f.)

1 Coy. Engineers.

1 Signal Section.

### **INDEPENDENT CAVALRY BRIGADE.**

1st Lancers with a Machine Gun Coy.

7th Cavalry Regiment.

13th Cavalry Regiment with a Machine Gun Coy.

Battery of Horse Artillery.

1 Engineers Section.

1 Field Hospital.

**Turkish Army in Gallipoli.****ARMY TROOPS OF THE 5th ARMY.**

64th Regiment, 3 battalions, 1 machine gun company\*.

136th Regiment, 4 battalions.

The Gallipoli Gendarme Battalion.

„ Broussa „ „

„ Karasi „ „

„ Dardanelles „ „

Constantinople Fire-Extinguishing Regiment. Four Battalions, namely the 1st, 3rd, 5th, and 6th.

Adrianople Fortress Engineer Battalion; 4 companies.

German Engineer Company.

3 Field Batteries (not Q. F.)

1 Platoon of Muhafiz Infantry.

2 troops of Muhafiz Cavalry.

1 Signal Company.

1 Wireless Section.

1 Flying Corps Company.

\*Captured from British. In 1916 this regiment joined the 14th Division. The 136th Regiment subsequently went to the 53rd Division.

**(4). The evacuation.**

The order of battle given under this heading shows the Turkish forces in Gallipoli immediately after the evacuation of Anzac and Suvla, but before the transfer of divisions to the Southern, or Sedd-el-Bahr Group. About this time seven Turkish divisions were sent away from the peninsula, one before and the remainder immediately after the Anzac and Suvla evacuations. Six others were transferred from the Anafarta and Northern groups to the Southern Group as soon as the west coast was found to be clear of British troops.

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*Saros Group.*

17th Army Corps.—25th Division.	} Watching the Coast from the north of Suvla to Enos.
Independent.	
Cavalry Brigade.	

---

\*The question of Turkish casualties in Gallipoli was raised by the writer in November 1918. In reply the Turkish General Staff, after exhaustive investigation, submitted the figures given above.



**Turkish Army in Gallipoli.***Anafarta Group.*

15th Army Corps.--6th Division.

7th Do.

8th Do.

16th Army Corps.—9th Division.

11th Do.

12th Do.

*Northern Group (Anzac).*

3rd Army Corps.—16th Division.

19th Do.

One Division (unnumbered)

*Southern Group (Sedd-el-Bahr).*

14th Army Corps.—1st Division.

14th Do.

15th Do.

20th Do.

*Asiatic Group.*

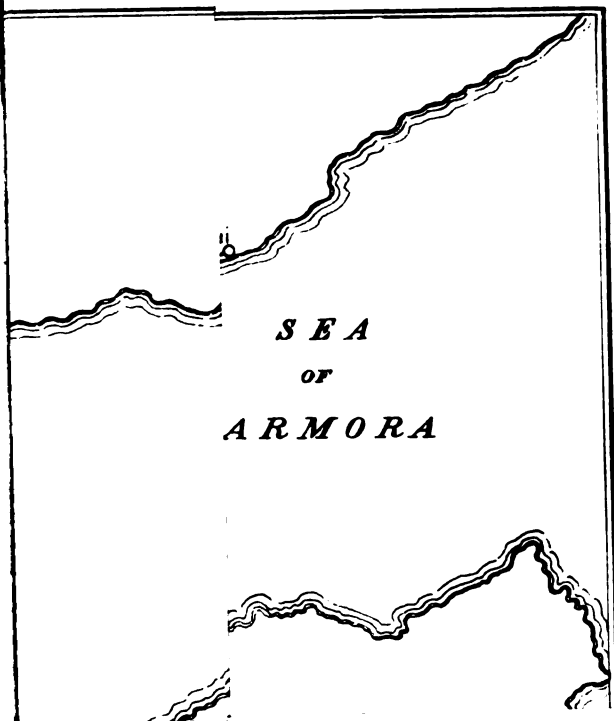
6th Army Corps.—24th Division..

42nd Do.

} Watching the coast  
 } from Kum Kale to  
 } Gheyikli.

**(5) THE SIGNING OF THE TURKISH ARMISTICE.**

The information under this heading is comparatively of little importance or interest. When the writer passed up the Dardanelles on the 6th November 1918, three weak divisions, namely the 49th, 55th, and the 60th, which then comprised the 14th Army Corps, were in Gallipoli, and nominally the headquarters of the 5th Army were there too. The 61st Division was strung out along the Asiatic coast south of the straits. The famous 5th Army was finally disbanded on the 21st November 1918, a fortnight after the writer's arrival in Constantinople.



*SEA*  
*OF*  
*ARMORA*



## **POSSIBILITIES OF CAVALRY.**

### **General Survey.**

Despite the carps and criticisms of the impatient, during the stalemate period of the Great War, there can be no doubt, in any soldier's mind of any branch of the services, that Cavalry has fully justified its continued existence as an essential part of any modern army.

Let us examine roughly the Cavalryman's claim to the nation's gratitude. To begin with, let us remember the great and successful generals that the "Cavalry Spirit" has produced. The names which spring at once to the mind are French, Haig, Allenby, Byng, Birdwood, Gough, and Kavanagh. To turn to the outstanding work done in the different theatres of war, and taking the French Front first, every student of tactics will remember the invaluable rear-guard work done by a weak force of four brigades, which practically saved the original Expeditionary Force from destruction.

After this phase came a long period of comparative inaction for the Cavalry although troops were by no means idle; they were training systematically; also taking over sectors of the line from infantry and also sending up pioneer battalions, whose excellent and keen work created a great impression.

As to the pitched battles in this period, at the Second Battle of the Somme in July 1916, the Secunderabad Brigade (General C. Gregory C.B., C.M.G.) of the 5th Cavalry Division, managed to push through a very small gap in the locked line near Bazentin-le-Grand and High Wood. The 7th Dragoon Guards and 20th Deccan Horse speared a few Germans in the cornfields and captured machine guns. When held up, they dug in and held on until relieved by infantry in the early hours of the following morning.

During the battles near Arras in early 1917 the 3rd Cavalry Division, in bitter weather, trotted through the infantry, seized and occupied the advanced position of Mouchy le preux, which, they held, under an intense bombardment and until relieved.

Again at the first battle of Cambrai on November 20th, 1917 the 1st Cavalry Division (General Mullins C.B.) did great work

### ***Possibilities of Cavalry***

west and south of Bourlon Wood, while the 5th Cavalry Division (General Sir H.A. Mac Andrew K.C.B. D.S.O.) operated between Marcoing and Masuieres at the former place; the Secunderabad Brigade, once more in advanced guard, pushed through Marcoing and a squadron of the 7th D. Gs, under Captain Lane M.C. got as far as Neuilly Eseeve; but the dramatic incident took place further south at Masuieres, where the Canadian Cavalry Brigade (General Seely K.C.B.) was operating.

Owing to a change of orders in the original plan, due to several causes, a squadron of the Fort Gharry Horse was ordered to seize a certain crest line.

The Squadron Commander, after receiving the order, was killed before he had time to inform his second in command of the change of plan and the new order. This latter officer thought that the original and special orders for his Squadron held good, and proceeded to carry them out.

The order had been ambitious one, (like the whole scheme for the Cavalry in this battle) and his objective a distant one.

He failed to carry out his objective, but the failure was an heroic one. In the course of this Squadron's raid behind the German line, they charged and captured a battery of machine guns, likewise a battery of field artillery. In this latter case, the German gunners, when no longer able to use their pieces, stood squarely up, with folded arms, to be sabred.

The Squadron also charged and scattered several bodies of infantry. Towards dusk, as the light was failing and most of their horses killed or wounded, they dismounted, stampeded their horses, and marched back on foot with bayonets fixed, in "partridge driving" formation: *ie*, a long single line with wide intervals between the men. The Senior officer now available was Lt. Cohen V.C; who, luckily, was a good German scholar. Whenever the party was challenged in the dark, he answered in German; and the party got through and eventually rejoined, some 40 strong, out of an original squadron of 110. Other men dribbled in during the next few days. The Germans, in their

**Communiqué**, described the raid as undertaken by a brigade of cavalry, and that all were annihilated.

The above are examples of gallant, aggressive but, under the circumstances, inconclusive Cavalry actions.

However the tale is very different when we remember the second battle of Cambrai on November 30th 1917. On this occasion, the Germans in a most energetic and successful counter-attack, had broken through north and south of Gouzeaucourt, and the British line was seriously threatened. All that morning the roll of drumfire had been noticed by the officers and men of the 4th and 5th Cavalry Divisions, then in the area of the Omignon River south of Peronne.

Some put it down to a raid, others to a "Strafe" against a German relief and very few realized the truth. However, while the squadrons were out at exercise, an urgent message was received by regiments to form up at once.

The units of the 5th Cavalry Division received the order at 9 a. m. and although squadrons, were out at exercise, the regiments were ready to move at 11 a.m., and all transport loaded.

The 4th Cavalry Division were actually relieving their men in the trenches east of Roisel, when the order was received: but they were ready with equal dispatch.

The 5th Cavalry Division (General Harry MacAndrew) headed by the Ambala Cavalry Brigade (General C. H. Rankin C.M.G. D.S O.) trotted for two hours, practically without stopping, and when in the neighbourhood of Epehy, was ordered to push on and clear the enemy out of Gauche Wood (2 miles S.E. of, Gouzeaucourt)

After leaving Epehy on their right, the leading Regiment the 8th Hussars, found themselves entangled in the wire defences of our own recently constructed second line and came under close machine-gun fire, which held them up.

The 9th Hodson's Horse, the next regiment behind, were then ordered to go up on the left of the 8th Hussars and connect with our troops attacking Gouzeaucourt

### ***Possibilities of Cavalry.***

This they did, and although there was only a narrow gap in the wire to their front, they managed to get through, despite fire at close range from front and both flanks.

The leading squadron galloped on, and met the Germans issuing from Gauche wood and crossing the railway.

These turned and ran back on seeing C Squadron led by Major Ian Fraser D.S.O., galloping towards them. They took shelter in the wood, with advanced posts on the railway.

Major Fraser seized a sunken road some 300 yards west of the railway : and then with four followers, rushed forward in an attempt to capture a machine-gun to his immediate front. He was shot dead through the head, and thus died one of the finest squadron leaders that the war has produced.

However by this time, the German guns had noticed and registered the gap in the wire, and a perfect tornado of shell met the head of the next squadron (D) under Major Vigors, D.S.O., M.C. The leading troop was literally blown to pieces, but the men never wavered and moved steadily on, as if on a ceremonial parade. The two rear squadrons were halted by the C.O. (Col. Beatty, D.S.O.) and brought up a few minutes later, with very little loss. The loss from barrage fire was only 2 1/2 per cent, but unfortunately included that first rate officer and polo player the late Major F. St. J. Atkinson, D.S.O.

The regiment afterwards all manned the sunken road and connected up with the 1st Cavalry Division, who, with the Guards, were retaking Gouzeaucourt.

Next day, on the right, and north east of Epehy, the 4th Cav. Div. put in some fine work, sowars of the 2nd Lancers actually jumping barbed wire entanglements and spearing the Germans beyond.

Other brigades attacked dismounted : and the 18th Lancers of the Ambala Brigade in conjunction with the Guards on their left, attacked and captured Gauche wood which they held all day under heavy shell fire, losing their Colonel, Corbyn, during the action.

Great work was done by the 1st Cav. Div. to the north of the Area in which the 4th and 5th Divisions were working.

There is no doubt that this rapid blocking of a large breach and the vigorous counter-attacking by the cavalry, saved the British forces from a most critical situation.

The work of the 2nd Cav. Div. in stiffening the 5th Army ; filling gaps, and counter-attacking in conjunction with the Canadians, Australians and French, during the last huge German offensive in March and April, 1918, had incalculable results. As a mobile reserve, Cavalry, in this great battle, time and again restored and saved the situation, in most desperate circumstances.

Let us turn our attention to the Palestine Front. It is impossible to over estimate the work done by the mounted troops. It is fair to say that none of the great results gained after the battle of Gaza, would have been possible, without the powerful, help of the mounted branch. Numerous horsemen are indispensable in war of this kind, real open warfare.

It is also permissible to state that unless Lord Allenby had received two divisions of regular cavalry (4th and 5th Cav. Div.), chiefly Indian, and under fine cavalry leaders, in the spring of 1918, he would never have obtained the results that he did.

Previous to the last grand operation, the mounted troops, Anzac and Yeomanry, had done fine work of all sorts. The outstanding actions of a purely cavalry character were first, the charge of the Yeomanry (Worcesters and Warwicks) in succouring the 60th Division at Huj; secondly the charge of General Godwin's Yeomanry Brigade on the hills of El Mughar, on which position the Turks had held up the whole advance on Ludd. Thirdly, the charge of the 3rd Australian Light Horse Brigade under General Grand, D.S.O. against the Turkish trenches at Beersheba; by which, that important place, with its priceless water supply, was captured.

On the 19th September, 1918, was inaugurated the wonderful break-through, and round-up and capture of the Turkish Armies, which only stopped after the taking of Aleppo on the 26th October by the 5th Cav. Div. under General Sir H.A. Mac Andrew, K.C.B., D.S.O ; assisted by Hedjaz Arabs, moving up the railway on the right flank. This 5th Div. had moved 500 miles in 5 1/2 weeks.



Their last advance of 230 miles was absolutely unsupported by any other troops, owing to exhaustion of animals.

On the Mesopotamian Front, although poorly handled at one time, the cavalry did fine work : notably towards the close of the campaign, when they twice passed round and cut off the retreat of large bodies of Turks. The above are a few instances, from only three fronts, very briefly reviewed. I have made no mention of the direct mounted attack and capture of entrenched enemy positions by the Jodhpur Lancers in the Jordan Valley, nor of how the same regiment captured strongly defended Haifa at a gallop : nor have I mentioned several gallant actions.

I have striven to give briefly an idea of what the Cavalry of the Empire did towards gaining victory for the Allies.

Who is physically the ideal Cavalry  
**The man :** soldier ?

It is hard to say, as they run in all shapes. The most graceful to behold are the long, wiry Anzac and the lithe Indian ; but these are by no means the only first-rate species. The sturdy built Britisher, the somewhat bigger Canadian and South African, are all first class fighting horsemen.

The old and still prevalent idea that the lighter the man the better, is not absolutely correct.

True, one wants a light man if possible, for the sake of the horse, but the jockey and bantam type are usually too small for the work. They find great difficulty in rapidly mounting when fully equipped ; also in saddling up hurriedly, and in effectively wielding their several arms. Again the heavy uniform and equipment, concentrated on a small human frame, is very tiring.

The truest of military commonplaces is the  
**The Horse.** old phrase " A Cavalryman's first weapon is his horse."

All types of riding horse issued to the Cavalry of the British forces in this war have done well. Of course, the well bred hunter type is the ideal one especially when rations and water are plentiful ; but he is only obtainable in small quantities.

The Argentine has justified his existence, although not a popular horse. The Australian has done very well indeed. The

Indian country bred has made a surprisingly good trooper ; more especially the regimental horse-farm bred products of Australian mares by T. B. English or Arab sires.

The latter type usually runs rather small, 14. 2 to 14. 3; but stood all kinds of work, fatigue and privation in a manner little short of marvellous.

The captured Turkish ponies, all 14 and 12 hands high were extremely enduring; and kept up with the bigger horses at the walk and trot, for any distance.

As a "pis aller" the mule can be quite a satisfactory mount for the cavalryman, but is usually more usefully employed in pulling a waggon.

The under-bred British horse, usually issued as a pack or for light draught, is a failure; he can stand no steady hard work, nor privations. He should be washed out in the future, and replaced by the riding horse or the mule.

During the late great world war, Cavalry were the most armed of any branch of the Service. A Cavalryman carries a rifle and bayonet, a sword and if a lancer, a lance in addition. The Squadron has its four Hotchkiss Rifles; and in Europe, carries a proportion of bombs. The question is "Should Cavalry be so heavily armed in the future?" As to sword and lance, I know of no instance when a lancer, actually, using his lance in action, had to discard it and draw his sword.

It is an open question whether a man should carry both: however, as the lance is a fragile weapon, and the sword not a very heavy burden, it is as well to retain both.

It might be noted here "en passant" that the seemingly prohibitive weight of 20 stone or more, has been easily carried by all types of horses, for long periods, provided rations are good and plentiful.

Sore backs sometimes result, usually far back due to the weight of the man and rear equipment being supplemented by two filled nosebags. Will the Cavalryman need a bayonet in the future? I think so, he will often have to act on foot, and a bayonet is a great weapon for close fighting.

### **Possibilities of Cavalry.**

The Hotchkiss Rifle has certainly come to stop. It has wonderfully increased the fire power of Cavalry; and, although it has not much material effect except at close quarters, its rapid "tap tap" is often mistaken at medium range for the "tock, tock" of its big brother the Vickers machine-gun: and the moral effect thereof is great.

Some mounted action enthusiasts urge, that as each troop has an Hotchkiss Rifle with detachment, the rest of the troop could dispense with rifle and bayonet and be used for scouting, patrolling and shock only, while the fire power could always be provided by the Hotchkiss. Needless to say, such a very reactionary doctrine cannot find favor nor stand close interrogation.

The 16, or in British units 12, Hotchkiss Rifles have now replaced the original M.-G.'s, which have been absorbed in the various M.-G. Squadrons.

Personally I think that in addition to the M.-G. Squadrons, each Cavalry Regiment should have a section of its own Machine Guns, in addition to the authorized establishment: extra personnel being allowed, for this purpose: or if this is difficult, then re-arm the Hotchkiss detachments of one squadron per regiment with Vickers guns.

Let us now examine the auxiliary arms necessary for larger Cavalry formations than squadron or regiment.

I am sorry to hurt the feelings of Horse Gunners; but I say, most emphatically that the Horse Artillery of the future, if it wishes to serve with and be of any real use to Cavalry, should be on pack. We want something that can go off a road and come along thus, even if only at a walk and to be able to do so as long and as often as required.

The wheeled arm is of no use to Cavalry moving across country; nor is the 13 pounder much use in stationary fighting. It is easily outranged and its hitting power is small. From personal experience in Palestine I found that the mountain guns of a Camel Battery were of far more use in the time than Horse Artillery.

Give a Cavalry brigade a battery of mountain artillery or two 12 pounders and two 20-lbs howitzers.

However, in case the operations are in highly civilized countries with really good and plentiful roads, wheeled Artillery can be substituted or added. In this case, it would be preferable to attach to each Cavalry Brigade, one field battery of 18 prs, or still better, a composite Battery of one section 4. 5 howitzers and one section of 18-prs. In a country of good and many roads, the Field Artillery can go quite as far and as fast as the Cavalry will require of it, and will be far more effective than the Horse Artillery with its inferior guns.

When the situation requires the Artillery to move across country in support of the Cavalry, the present horse artillery is practically as ineffective as field artillery. In fact a wheeled arm is perfectly useless for supporting mounted troops, operating at some distance from a road. There are occasions when wheels can move comfortably across country; but these are rare and the slightest obstacle holds them up for hours, while pack animals can cross the same obstacle, practically without loss of time. Nobody has a more sincere admiration for horse artillery than the writer. The esprit de corps, picked personnel, smartness, devotion and gallantry of this branch of the Service, are beyond praise. Five years in field artillery taught me to look on horse artillery as the idea branch of the service, "the right of the line and the pride of the British Army" However, if R. H. A. Officers wish to really be of use to cavalry in the future, they should face the situation, and strive to get the present horse artillery gun discarded and rearm themselves and with field and mountain guns.

They need not cease to be horse artillery. It will always be necessary to have a proportion of mobile artillery systematically trained to work with Cavalry. These specially trained batteries will therefore still be Horse Artillery: and will be a really useful auxiliary and support to their Cavalry, which is not the case at present.

The suggestions therefore are (a) give a cavalry brigade a composite battery of one section 4. 5 howitzers and one section 18-pdrs for warfare in really well roaded countries and (b) for other terrain substitute or add a composite mountain battery of one section 20-pdrs howitzers and one section 12-pdrs.

## ***Possibilities of Cavalry.***

In addition to the aforesaid, for warfare in Europe; and, when required, in other lands, it should be feasible to fashion and equip for pack, a light Stokes mortar section, with a small supply of ammunition. It is really worth while to give your mounted men all this fire support, which has been here advocated.

### **Tactics and Employment.**

There is no reason to suppose that Cavalry tactics will alter much in the future. There will be slight variations, naturally, owing to development of inventions. Let us briefly examine one or two possible cases: firstly a Cavalry Division acting independently. There is no doubt in this case, the divisional troops should include a proportion of aeroplanes, light armoured cars and light patrol cars. The preliminary long distance reconnaissances would be carried out by aircraft.

The next reconnaissance should be done by the cars. Finally the mounted troops, as they come up in their turn, will complete the reconnoitring work and relieve the cars of the duty of maintaining touch with the enemy.

The possible collision that would follow, if the enemy elects to fight is not an easy matter to visualize; so much depends on the enemy, the composition of his forces, terrain etc. A whole book would be required to deal with possible examples.

But there is one other point, in the employment of Cavalry, which requires earnest consideration: and that is the great utility of diffusion of a Cavalry force, under certain circumstances, as opposed to the old idea of large concentrations. The pre-war conception was the forming and keeping together of a big Cavalry force, which could strike crushing and sustained blows at the crucial moment.

This was the Napoleonic idea, afterwards much fostered by military writers. It was probably the most useful disposition in the late 18th and 19th Centuries. Stuart's successful raids in the American war of 1861 to 1865, and Sir Harry Chauvel's wonderful use of the Desert Mounted Corps in the last phase of the Palestine campaign are the first instances, which occur to the mind, of the successful application of this principle in modern war.

But Cavalry is now so versatile, that it should be used considerably more in smaller packets and diffused operations.

For instance, a regiment or even a squadron, attached to an attacking brigade, especially in open or fairly open fighting, will often have great chances of completing the victory opened up by the Infantry attack.

The enemy's Infantry, forced to evacuate an entrenched line, proceeds to fall back on another prepared position, a mile or so in rear. The men are tired, defeated, but not demoralized. They are followed up by successful infantry, who can walk no faster than themselves. These latter halt, take post and are soon ready to meet another attack.

Your own infantry, though successful is now somewhat tired, slightly disorganized and out in the open: and not really ready for a fresh assault. They will probably dig in and attack again next day, suffering the inevitable losses; and spending a poor night, previous to the assault out in the open, with only hastily improvised cover.

How different if a small force of Cavalry had been at the disposal of the attacking commander. This officer watching the fight, with his C. O. near him, could have told the latter when to intervene. This would probably be when the enemy's troops were commencing to evacuate. The Cavalry, let loose, would move rapidly around the enemy and forestall him; or, if that were impossible, would probably be able to enfilade his withdrawal with Hotchkiss Rifle fire, while the mounted portion would take every opportunity of attacking. In either case, it is probable that a very large number of prisoners would be the result of the manoeuvre; also the possible capture of the second line that day, thus saving many a casualty to the infantry. Again, in an infantry retirement, if the foot soldiers had some Cavalry attached, these latter could hang out to the last moment, then mount and retire rapidly. The infantry would thus be saved many an expensive rear-guard action, inevitably costly to slow moving troops after an action at close quarters.

### ***Possibilities of Cavalry.***

Let us now take cases of fighting on a bigger scale, such as a large enemy attack impending on an intrenched line. In this case a cavalry division might, most usefully, be attached to each infantry corps implicated: or to the corps likely to be most hardily pressed. The infantry corps commander could then ask the divisional cavalry commander to tell off a cavalry brigade to each of the infantry divisions: similarly the infantry divisional commander would ask cavalry brigadiers to tell off a regiment to each infantry brigade. Similarly the squadrons would be told off to the battalions.

This is all feasible, and would present no difficulties in relief and supply to really good staffs.

These subdivided bodies of cavalry could work as above described, and would be of inestimable advantage to the infantry. And not only could they act thus, but it must be remembered that several occasions of rapid counter-attack would present themselves. Fleeting occasions which could be seized, which nowadays are always missed, as no Cavalry are handy at the psychological moment.

Similarly with an infantry corps attacking, a subdivided Cavalry division could secure instant and far-reaching results, impossible to a formed mass. This latter would, in all probability be too late to intervene decisively, by the time the information had got through and orders issued.

I am aware that one of the chief reasons against the above suggestions being followed, is the disinclination of Cavalry commanders to lose personal control of their squadrons.

However, if troops are really well trained and understand the necessity of keeping their superiors informed of the situation and of their whereabouts this objection need not hold.

All the above suggestions, call for intimate and trained liason and understanding between cavalry and infantry, which is a point in future training which should receive the closest attention.

Let us hope that the above mentioned possibilities of the use of cavalry, which commend themselves to many an ardent and thinking cavalryman, will be seriously considered in our future

training and, modified where necessary, be actually applied in war.

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NOTE—Since the above article was written and before it appeared in print, a machine gun squadron per regiment has been officially sanctioned.

REGIMENTAL COMMANDER.

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## **ACTION AT DAKKA 16-17th MAY 1919.**

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1. The defeat of the Afghans in the action between Bagh and Khargali on the 11th May had a very steady effect on the local tribesmen, and turned out to be a more complete success than was at first realised. On the 12th, a reconnaissance in force under the command of Brigadier General G. D. Crocker found the enemy still holding the Tor Sappar—Spinatsuka ridge North of Landi Kotal in strength, so when orders were received on the 12th for the 1st Division to open the road on the 13th for a Cavalry force to pass through to Dikka, it was quite anticipated that considerable opposition would be encountered before the intervening country could be cleared and the road picqueted. The G.O.C. 1st Division (Major General C.A. Fowler, C.B., D.S.O.,) consequently decided to employ all troops not required for holding the long line of picquets covering Landi Kotal, and personally to direct the operation. The troops employed were the 2nd Infantry Brigade (Major General S.H. Climo, C. B., D.S.O.) and 3rd Infantry Brigade (Major General A. Skeen, C.M.G.) with a proportion of divisional troops and a detachment of Khaibar Rifles. The above troops assembled before dawn on the 13th between Landi Khana and Michni Kandao and by that time troops of the 2nd Brigade were already scaling the high hill (3,618) commanding the exit from the Khaibar, and the seizure of which was necessary before the column could commence its advance. Rather to everybody's surprise, this was accomplished without opposition.

2. General Climo, with part of the 2nd Brigade formed the advanced guard and carried out the picqueting. The advance continued unopposed past Tor Kham and Painsa Khak, to Haft Chah, which was evacuated by a few tribesmen as the column got close to it. These tribesmen had evidently been making the most of the occasion, as was testified by the broken rifle and ammunition boxes; but on our arrival there were still about twenty intact boxes (20,000 rounds) of Afghan 303 ammunition, with the Kynoch stamp, which the looters had not had time to

remove. A few shots were fired as the troops scaled the last hills overlooking the Dakka plain, but it was soon seen that the Afghan forces and their allies the tribesmen, had disappeared. Information was then sent back to Landi Khana to inform the Cavalry force, on their arrival, that the road was open for them to pass through to Dakka. This first march is described at some length, as these were the first British and Indian troops to enter Afghanistan since the former war of 1878-80, and many of those who took part in the march felt that it was rather an historical occasion.

3. The first view of the Dakka plain is not exhilarating ; an arid stony waste surrounded on three sides by barren rocky hills, with groups of mud buildings near the river constituting the village of Loe Dakka ; and except for one small clump of trees at Sirikh Ziarat, there is hardly a tree on the right bank of the Kabul River. In the distance the crumbling walls of Robat Fort and Sherabad Cantonments do not add beauty to the outlook. Across the Kabul river, over which no bridge existed, the village and trees of Lalpura village added a touch of colour to an otherwise depressing scene. This first impression was fully borne out by later experiences, when the dust and heat were alike found to be abominable and the only redeeming features proved to be the bathing in the river and the absence of mosquitoes. Nobody who has once been to Dakka ever evinces any desire to revisit it.

4. The Cavalry force, which consisted of the 1st Cavalry Brigade (Brig. Gen. F.G. Davies) together with the 30th Lancers; the whole under the command of Brig. General G. M. Baldwin D.S.O.; had started at dawn from Jamrud, and had a hot and dusty march through the Khaibar ; they were accompanied by an M.T. convoy carrying supplies. The Cavalry force passed through the 1st Division picquets and occupied Dakka without opposition. The M.T. convoy was immediately unloaded and as soon as the convoy had returned within the 1st Division picquets, the 1st Division withdrew, according to orders, to Landi Khana and Landi Kotal, leaving the Cavalry force temporarily isolated

***Action at Dakka 16-17 May 1919.***

in the Dakka plain. The 1st Division was still without most of its 2nd Line transport, as the tactical situation on the commencement of hostilities had precluded any delay in advancing up the Khaibar, and all those who took part in this first phase of the operations fully realised that, but for this rapid move, the situation in the Khaibar and indeed on the whole frontier would probably have become critical. No camels are normally maintained trans-Indus, and the local resources at the disposal of the Divisional Commander were so limited that it was with difficulty that all units were equipped with the necessary minimum of mule transport. Mechanical transport already in the Peshawar area had therefore been used both for the rushing forward of troops to Landi Kotal and for transporting essential stores. When it is considered that the 1st Brigade marched from Peshawar on the very day the orders were received for the move up the Khaibar (6th), and that practically the whole division was engaged in the action at Bagh (28 miles from Peshawar) on the 11th, while most of the troops had had to be brought into Peshawar by rail and road from Abbottabad and Nowshera, it will be realised how difficult was the transport question. A further embarrassment had been the necessity of surrounding Peshawar City on the 8th by means of a cordon of troops consisting of 1 regiment Cavalry, 2 battalions Infantry and one Light Armoured Motor Brigade. This cordon had to be kept in position until extra troops arrived from outside in relief. These difficulties were realised by those taking part in the initial operations and the inevitable discomforts arising therefrom were accepted by all ranks in the best spirit. Any further advance in force from Landi Kotal was therefore dependent on the arrival of the necessary transport.

5. On May 15th the 1st Infantry Brigade (less 2 Battalions) marched from Landi Kotal to Dakka, where it came under the orders of G.O.C. Cavalry force, which in its turn came under the orders of G.O.C. 1st Division. Early on the 16th the remainder of the 1st Infantry Brigade together with No. 8 Mountain Battery and No. 7 Coy. S. & M. proceeded to Dakka, where General Crocker assumed command, vice General Baldwin who returned to Peshawar to command of the 10th Cavalry Brigade.

6. On May 15th G.O.C. 1st Division had issued orders to G.O.C. Cavalry Force for a reconnaissance to be carried out on 16th towards Basawal. In accordance with these orders a force under the command of Colonel C.N. MacMullen C.M.G., D.S.O. (Commanding 15th Sikhs) was detailed for the reconnaissance. It consisted of :—

- 2 Squadrons K.D.Gs.
- 1 Section Machine Gun Squadron.
- 1 Sec., " M " Battery R.H.A.
- 15th Sikhs (less 2 companies)
- 1 Section No.6 C.F.A.

The above force assembled close to Dakka, as ordered, at 05.30 hours on 16th May.

Colonel MacMullen sent forward the Infantry to secure the Khurd Khaibar pass and sent all animals to water.

As soon as watering was finished, two troops were despatched to reconnoitre Sherabad Cantonments, a large unoccupied enclosure with high mud walls, but no buildings, and the 2 R.H.A. guns were placed in position near Robat Fort to cover the advance on the Khurd Khaibar pass. The hills here form a rough horse shoe enclosing the plain in which Sherabad Cantonment and Robat fort are situated. The Northern end of the crescent starts from the Kabul River and the South end comes down to within about 300 yards from the river again at Sirikh Ziarat. The Eastern face overlooks the Dakka plain and the Western face the Girdi plain, several spurs project into the latter from the crescent. The hills are bleak, rocky and very steep, rising 600 to 1,300 feet above the plain, and from these hills a good view could usually be obtained over the Girdi plain. On the two preceding days few enemy had been seen, and serious opposition was not anticipated.

The enemy was found to be in position on the Pass, but in small numbers, and his opposition was easily overcome and the pass secured. Leaving one Company, 15th Sikhs, in position on the Pass, Col. MacMullen pushed on by successive bounds, the Cavalry in front, supported by the remaining company of Infantry,

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and, under cover of the fire of the 2 R.H.A. guns and Section Machine Gun squadron, the village of Girdi was attacked and captured at 09.50.

The company of Infantry was pushed forward to the ridge West of the village, and the section of Machine Guns was brought forward to the village.

The enemy's resistance was now stiffening considerably and he had brought artillery and machine guns into action while considerable numbers could be seen working round the left of the small force. The commander realised that he could not advance further without getting seriously involved, and jeopardising his eventual retreat. The total advance had already amounted to six miles, so at 10.45 the column started to withdraw, and directly it did so, the enemy came on with great rapidity and boldness, in considerable numbers. They numbered several hundreds both mounted and on foot, and it was only with great difficulty that our troops reached the position held by the advanced picquets of the company left on the Khurd Khaibar pass.

As units got under cover of the advanced infantry picquets they were reformed and a systematic retirement covered by alternate parties of the K.D.Gs. commenced.

The enemy, however, continued to press on with the greatest hardihood and vigour and at 12.25 hours his mounted men had reached to within 300-400 yards of the commander himself near Robat Fort.

To gain time and to enable the whole force to get clear, one squadron of the K.D.Gs. was ordered to charge, which they did with great gallantry. Some of the enemy retired, but others stood their ground, and the cavalry got into them and did considerable execution.

By 13 00 hours the whole force was back in Dakka camp, and the action was continued by the troops in camp.

7. The first impression was that it was the reconnaissance which precipitated the action, but later information showed that this was not the case, and that the enemy were already en route

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to attack Dakka on the Mahomedan Sunday, *i. e.*, Friday 16th May, which also coincided with the festival of "Shabrat." The enemy had meanwhile seized the eastern end of the horse shoe ridge, from which he soon brought heavy rifle fire and occasional gun fire to bear on the camp.

8. The G.O.C. 1st Division had been visiting Dakka, but had returned to Landi Kotal shortly before the enemy's attack developed, without knowing that anything untoward was happening. He had issued orders that the camp should be moved next day to a position near Robat Fort, and had directed that the Khurd Khaibar pass should be permanently held. The enemy's attack unfortunately commenced before these orders could be carried out.

9. The arrival of the remainder of the 1st Infantry brigade with No. 8 Mountain Battery and No. 7 Coy. S.&M. about the time this action began was most opportune, and it was also fortunate that all transport animals other than 1st Line had returned to Landi Kotal that morning, as, owing to the lack of cover there would have been no protection for them from the enemy's fire. As it was, the cavalry horses and transport suffered severely.

10. General Crocker now made the following dispositions :—

The 35th Sikhs were at once moved out west of the camp towards the higher ridge (now known as Somerset Hill) which prevented the enemy from advancing in any large numbers up the nullahs towards camp. At the same time the 1/9 Gurkhas (less 2 Companies picqueting road towards Landi Khana) supported by one company 15th Sikhs, were moved out south west covering the left flank, until stopped by heavy fire from the lower slopes of the ridge further to the west.

M. Battery R.H.A. and No. 8 Mountain Battery R.G.A., came into action close to the camp perimeter. Two squadrons cavalry were sent out to the foot hills south-west of camp.

Meanwhile all spare horses were taken into the nullah running north and south immediately east of camp, and all transport animals were placed under cover of Dakka village.

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The move of these animals nearly led to a stampede of drivers and followers, but this was soon controlled.

The picquets of the 1/9 Gurkhas on the road to Landi Khana were ordered to remain out in position all night, as it was anticipated that the enemy might try to work round the left flank.

The road from Landi Khana to Dakka was picqueted daily between 07.00 and 17.00 hours, after which no movement was possible, and as telephone lines were nearly always cut shortly after dark, any communication after that hour was limited to laborious transmission by lamp through several transmitting stations.

During the remainder of the day the enemy kept up a very heavy fire, but were prevented from any further advance by our advanced troops. It was evident that the enemy was occupying the ridge in strength.

At dusk the hostile fire slackened, and our advanced troops were withdrawn into the perimeter. The night passed comparatively quietly.

II. The total casualties this day were:—

	B.Os.	I.Os.	B.O.Rs.	I.O.Rs.
<i>Cavalry</i>				
Killed	-	-	4	1
Wounded	3	1	30	7
<i>Infantry and Artillery.</i>				
Killed	2	-	1	2
Wounded	1	-	8	39

12. Casualties which could not be collected at the dressing stations in time to admit of their being evacuated by motor ambulances to Landi Kotal while the picquets were still in position, had to remain at Dakka until next morning. The work of the medical service was beyond praise; three medical officers were hit on 16th or 17th while actually attending the wounded, which caused a serious shortage, and the motor ambulances had on each journey to run the gauntlet of hostile artillery and rifle fire from the time they debouched on to the Dakka plain until they reached the comparative security of the village. The number of bullet

holes through the ambulances testified to the devotion of the personnel in charge.

13. General Crocker decided to attack the ridge at 04.30 hours on the 17th, starting early so that the troops should get across the open exposed ground to the foot of the hills before daylight. The ground did not admit of anything but a frontal attack.

The dispositions were as follows—(see plan) 35th Sikhs-objective hill now called Somerset Hill 15th Sikhs-on left of 35th Sikhs-objective, peak now known as Sikh Hill.

1/9 Gurkhas (less two Coys. on picquets) to support 35th Sikhs.

Somerset Light Infantry—in reserve.

One Squadron Cavalry was sent out south west and one north west towards Robat, but the latter was driven back by gun and rifle fire shortly after the action commenced.

14. General Crocker had sent a message to H. Q. 1st Division at Landi Kotal explaining his proposed action on the 17th, and asking that reinforcements should be sent to cooperate. Owing to difficulties of inter-communication by lamp, this message did not reach Divisional H. Q. until 03.30 hours on 17th.

15. General Fowler thereupon issued orders for H. Q. and 2 battalions (1st Yorkshire Regiment and 2/1st Gurkhas) 3rd Infantry Brigade (Major General A. Skeen C. M. G.) together with No. 285 M. G. Coy; special section (3·7 howrs) of No. 6 M. B. R. G. A. (3·7 howrs) and followed later by one Section 77th Howitzer Battery R. F. A. to move to Dakka at 07.00 hours. In order to brush aside any opposition from enemy who might have worked round on the Landi Khana-Dakka road, the G. O. C. 2nd Infantry Brigade was directed to use such of his troops as were not employed on picquets, etc. to open the road for the passage of General Skeen's column, and to assist in this operation, No. 6 M. B. R. G. A., (less I Section) was sent to join General Climo, who, however, met with no opposition. General Skeen's column reached the Dakka plain at 11.30 hours without incident.



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16. To return to General Crocker's force:—

In accordance with their orders, the infantry reached the foot of the ridge practically unopposed, but so soon as they began to ascend the slopes they came under heavy fire at certain exposed positions.

Directly the enemy opened fire, our guns and machine guns also opened, and the enemy were soon driven from their lower advanced positions. The leading troops of the 35th Sikhs soon reached to within a few feet of the crest which formed their objective, but the razorback nature of the ridge rendered the artillery support by flat trajectory guns of little effect and the enemy, utilizing the cover afforded by the ground, kept up such a heavy fire that the 35th Sikhs were unable to maintain their position, and after suffering heavy casualties were forced to withdraw lower down the hill. The 19 Gurkha passing through the 35th Sikhs also reached close to the summit, but not in sufficient strength to assault.

At 08.00 the 15th Sikhs, without much loss, reached a position a short distance from their objective, but any attempt to advance over the intervening ground met with such a heavy fire that, without support, they could advance no further.

At 08.20 hours cavalry patrols reported enemy on N. bank of Kabul river and throughout the morning sniping from that direction continued. Meanwhile the enemy's guns were firing on the camp and at our guns, and also attempted to reach the nullahs in which the cavalry horses were placed, but without success.

17. When General Crocker heard that reinforcements of Infantry and howitzers were approaching from Landi Kotal, he decided to await their arrival before throwing his reserve battalion into the fight.

By 10.00 hours the enemy's fire had slackened off considerably, although still heavy from the north end of the ridge. A part of the Somerset Light infantry with ammunition and water was sent up to join the 35th Sikhs and 19th Gurkhas. The weather was very hot as can well be imagined by those who have experience of the plains in mid-May.

18. At 11.30 General Skeen's column debouched on to the Dakka plain. The 2/1st Gurkhas and 285 M.G. Coy. were ordered to assemble behind a small mound south-west of the road with the 1st Yorkshire Regiment on their right. When the 3.7 How. Section and 4.5 How. Section arrived, they were ordered to come into action and open fire on the reverse slopes and crest of the ridge held by the enemy.

19. General Skeen then proceeded to General Crocker's headquarters and took command (time about 12.20). Orders were issued for 8 guns of No. 285 M.G. Coy. and 2/1st Gurkhas (echeloned outwards to the left) to advance to a position 1600 yards from the enemy's position from which the M. Gs. were to open fire on the crest. C.Os. of the 3rd infantry Brigade and O.C. Somerset Light Infantry, were sent for and preparations were made for a resumption of the attack.

The 1st Yorkshire regiment had, owing to a misunderstanding, already advanced to the foot of the hill and by 13.30 hours had established themselves on the lower spurs of the ridge. The battalion was here ordered to stand fast to allow the Somerset Light Infantry to carry out the attack as ordered in Dakka Force Order No. 1.

Copy of Dakka Force Order N. 1, dated 17th May 1919.

1. Our Infantry at present engaged with enemy in position which will be pointed out to Commanding Officers.

2. Attack will be resumed as follows:—

1st Somerset Light Infantry to leave present positions at 14.00 hours and establish themselves as first objective on ridge now held by 35th Sikhs by 14.50 hours.

At 14.50 hours Howitzers will open section fire 30 seconds till 15.30 hours, No. 8 Mountain Battery and "M" Battery keeping up a sustained slow fire along ridge. Objective to be pointed out to Commanding Officers—on both sides of Stonehenge (i.e. Somerset Hill.)

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Somerset Light Infantry will advance on to forward slopes of Stonehenge and work up strong line to within 150 feet of summit by 15.30 hours.

At 15.30 hours all guns will open section fire 10 seconds till 15.40 hours.

*Timings for machine guns.*

285 machine gun company. on objective shewn

14.50 hours to 15.00 hours, rapid fire.

15.00 to 15.30 hours frequent bursts.

15.30 to 15.40 hours rapid fire

machine gun squadron on objective shewn timing as 285 machine gun company.

3. Advance dressing station close to camp.

4. After gaining ridge Somerset Light Infantry will prepare for occupation and occupy it tonight.

5. Force headquarters at present 1st Brigade headquarters.

21. Soon after the opening of fire by the Howitzers and machine guns the enemys fire began to slacken and it was apparent that his hold on the position was weakening. The 15th Sikhs seized their opportunity and at 14.30 rushed the position on gaining which they saw the enemy streaming away towards the Khurd Khaibar pass, and effectively hastened their retreat by their fire. The Somerset Light Infantry had further to go, but gained their objective at 15.50, only to find the enemy had retired. Except for the assistance of the howitzers of General Skeen's column, which was most effective, General Crocker's force had thus the satisfaction of, by themselves, bringing to a successful conclusion one of the hardest fought fights which have taken place on the N.W. Frontier. The moral effect of the arrival of General Skeen's reinforcements did, however, largely contribute to the success of the final attack.

22. After this action the enemy dispersed in utter rout and the Afghan regular forces in this area never attempted any further aggression.

The enemy's strength is difficult to estimate, but there cannot have been less than 3,000 riflemen disposed along the





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position on the 17th. Of the 7 guns which the enemy had in action 5 were captured (all Krupps).

The enemy's casualties on 16th and 17th at a conservative estimate are considered to have been 200 killed and from 200-500 wounded.

23. Our total casualties on the 17th were:—

	B.Os.	I.Os.	B.O.Rs.	I.O.Rs.
<i>Cavalry</i>				
Killed	—	—	2	1
Wounded	—	—	3	1
<i>Infantry and Artillery.</i>				
Killed	3	3	—	19
Wounded	7	4	6	132.

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### **S.A.A. SUPPLY IN THE FIELD—A SUGGESTION.**

An essential feature in the successful conduct of battles of the present day, is the rapidity and smoothness with which an army can supply, and keep supplied its troops in action nearest the enemy with further stocks of ammunition due to the initial supply becoming exhausted. Time is an all important factor and it may well be that delay, even if comparatively slight, in demanding and in the subsequent delivery of fresh ammunition to troops in action may cause, if not a setback, then the loss of valuable lives.

Delay will of course often be caused by enemy activity, but leaving this aside it can be minimised to a certain extent.

The suggestion here offered has as its object an attempt to economise time, and if only in a small degree to speed up the replenishment of ammunition to points where it is becoming exhausted.

The ideal to be aimed at is that ammunition with troops in the firing line must never be allowed to become totally exhausted before a new supply is received.

Very naturally this depends for the most part on the judgment of Sub-unit Commanders and the situation, with reference to a demand for a fresh supply.

Valuable time, however, could be saved at four points, *vis*, the firing line, section reserve, battalion reserve, and the inf. bde. ammunition reserve. With the existing system it seems that a demand for more ammunition having its source in the firing line will generally be made either verbally to a runner or ammunition carrier, or by a written message.

The first method is not really satisfactory for obvious reasons, and the second is discounted by loss of time, and the very real difficulty of writing message in the distracting conditions prevailing when an action is in progress.

The suggestion is, therefore, the use of a series of coloured discs or counters, which would act as tokens or receipts for the demand of more ammunition before an initial supply is exhausted and thereby to offer an alternative to the above existing means.

Let us see how this plan would work out in actual practice. The main underlying idea of the suggestion is that each unit or sub-unit shall have discs of a distinct colour for purposes of identification, and that the discs shall bear a denomination in terms of so many boxes or bandoliers of ammunition, in relation to the size of the unit or Sub-unit.

As an instance, beginning with the larger formation we will presume that each battalion in a brigade has been issued with discs of a colour and value as under :—

<i>Colour of Disc.</i>			Green	Red	Yellow	Black.
Unit.						
Battalion A	...	20				
„ B	...	...	20			
„ C	...	...	...		20	
„ D	...	...	...	...	...	20

*Remarks.*—Shape of disc, Square  $1\frac{1}{2}'' \times 1\frac{1}{2}''$ . Each disc to represent a demand for 5 boxes.

In "Infantry" Training it is laid down that the battalion reserve S.A.A. will ordinarily be in the charge of the Regt. Sergeant Major and it follows therefore that when going into action the discs would be in his keeping

The number 20 has been given above so as to allow a large margin in case of very long engagements. Companies might be issued with Round discs of a different colour for each coy. and the value of each disc might be set at one box or 20 bandoliers, which ever form of issue was most suitable to the occasion.

Similarly in action these coy. discs would be in charge of the C.Q.M. Sgts. (or C.Q.M. Havildars in the case of the I.A.) and they would be responsible that by their means the section reserve ammunition was kept up to the authorized proportion.

Eight discs would suffice for each coy. section reserve the collective value thus totalling twice the authorized proportion for each coy.

Finally all company platoon and section commanders should have with them, convenient to hand a small supply of discs of another shape, say semi-circular, but of the colour allotted to the coy.



### ***S.S.A. Supply in the Field.***

The only difference here again is that the discs would bear a smaller value say 5 baudoliers or 250 rds. each. During the later stages of an attack little or no opportunity occurs for replenishment of ammunition. by individuals it must be remembered; supporting bodies will carry with them extra ammunition which must be replaced at the point where it was obtained with all speed. By using discs the procedure is quite simple and easily imagined, and there should be a minimum of delay in sending off for more ammunition. and no confusion at the issuing points. To sum up the following are a few advantages which the use of coloured discs would bring :—

- (1) Speeding-up of issue and economy of time.
- (2) No necessity to give out verbal orders or write messages for requirements. The difficulty of writing messages under fire is obvious to all ; much noise, lack of adequate cover, the extraction of note book and pencil combine to make the operation most unpleasant.
- (Messages thus written are more often than not illegible).
- (3) Individuals responsible for the issue of Reserve S.A.A. have at once a check and a receipt from the unit or sub-unit drawing the ammunition.
- (4) Material assistance gained in computing number of rounds fired in an action by units.
- (5) Continuity and smoothness of working would be ensured.

In conclusion it may be stated that among other points much stress is laid upon the importance of practising the supply of ammunition. during field days and at manoeuvres.

This is often overlooked.

The above idea would provide more inducement for this practice when using blank ammunition and the tokens or discs acting as receipts show at a glance the quantity and to what units or sub-units ammunition was issued.

W. H. WELMAN MAJOR.

### ***3-7 Gurkha Rifles.***

## **SOME FURTHER REMARKS ON SAPPER AND MINER ORGANISATION.**

BY 'KIRKEE'.

An article by Major Stoehr, R. E., appeared in the October number of the Journal in which certain suggestions were made *re* the organisation and training of Sappers and Miners. While not disagreeing with any of these suggestions, I think that these are based on the assumption that certain pre-war conditions are unalterable. There are one or two aspects of S. and M. organisation which are so important that it may be worth while to consider them from the point of view of war efficiency only. There is also one very important point—the internal organisation of a field company, on which Major Stoehr has not touched at all.

It is assumed throughout that the engineer troops of an Indian division will in future be organised as in the British Army and in the Indian Expeditionary Forces, *i.e.*, there will be three field companies under a C.R.E. who will have an adjutant, but no other divisional field engineers.

### **(1) Organisation of S. and M. by corps.**

At present, there are three corps, each under a Commandant, with an instructional and administrative headquarters staff. Each corps supplies the field companies for three divisions and certain engineer army troops units and has also a depot organisation. Before the war, rather more than half the field companies were stationed in the area of the division to which they were allocated for war, but only in the exceptional case of the Commandant being the War C.R.E. of a division were the field companies trained and administered under the officer who was to be their C.R.E. on service. Normally, the war C.R.E. was an officer appointed from the M.W.S. on mobilization.

Now this, I think, was the only case in either the British or the Indian Army, in which combatant troops were not trained by their war commander.

Royal Engineer companies of the British Army were organized in one corps, with two main recruit training centres

### ***Some Further Remarks on Sapper and Miner Organisation.***

but with no permanent subdivisions for administration. The training of the field companies of a division came under the war C.R.E. This system would be difficult to apply to India, chiefly owing to distances and recruiting problems.

Would not the most suitable organization be to form one corps for each division, stationed inside the divisional area (preferably at divisional headquarters)? Such divisional corps might still be linked into the present three corps. The commandant would be ex-officio the war C.R.E. of the division. The organization of such corps might be:—

Commandant (C.R.E. on mobilization)

Second in Command (Superintendent of Instruction in peace and O.C. Depot on mobilization)

Adjutant (Adjt. Divl. Engineers, on mobilization)

Three divisional field companies

Army troops, as required,

Depot company.

It is believed that such a divisional organization would greatly tend to increase war efficiency. Other advantages would be:—

- (a) The war C.R.E. would come into contact with the divisional pioneer regiment and could perhaps advise as regards technical training.
- (b) He would be in a good position to arrange with the peace C.R.E. to obtain training for his companies on M.W.S. jobs of a nature that they might be called upon to do in war.
- (c) It would probably be easier to tap local recruiting sources for artificers.
- (d) Some field service administrative regulations, designed primarily for infantry and cavalry, would be more easily applied than at present.

The most obvious objection (apart from sentimental ones) is the difficulty of finding good engineer training centres and the expense of fitting them out. But none of the existing centres are perfect, as it is.

**(2) Officer Personnel.**

Before the war, each S. & M. field company had two R.E. officers posted to it, as company commander and company officer. Four officers were required for war (increased to five in most I.E.F.'s) The additional officers were attached on mobilization from the M.W.S., P.W.D. or Survey of India. The R.E. officers of these three services had also to provide army corps and divisional engineer staff, and officers for the L. of C. works directorate. They also formed a reserve of R.E. officers, which was of great use in 1914 in expanding the Home Army.

It is a fairly accurate generalisation to say that on mobilization, R.E. subalterns in India are attached to S. & M. units and officers of higher rank become field engineers or join the works directorate.

Now the peace work of the M.W.S. and P.W.D. is to a fair extent and that of the Survey to a small extent good training for a S. & M. field company officer. Officers of the M.W.S. and P.W.D. have commanded companies on service very successfully, and such officers are naturally much more knowledgeable in work which is not purely military engineering than those who have always served in S. & M. ; but it cannot be maintained that the work done by R.E. subalterns in peace in either of the three services constitutes the best possible training for their duties in war, that is, as officers of S. & M. companies

Surely the logical system would be to have all R.E. subalterns in India posted to S. & M. units, those not required for company commanders being transferred to the M.W.S., etc., on promotion to captain. They would remain actually serving with their companies for, say, 18 months (when they should have become passably proficient in their duties) and then be attached to the M.W.S., P.W.D. or Survey for work, except for, say, two months annually, when they would train with their companies and so keep in touch with their war duties.

It is quite obvious that such a system would be objectionable from the point of view of the departments concerned, but if it

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is granted that the "raison d'être" of the R.E. subaltern in India is to be available to do the work of company officer in S. & M. units on mobilization, then such other work that he may do should surely be made subordinate to his being efficient in S. & M. duties.

#### **(3) Internal Organization of Field Companies, S. & M.**

It is believed that most officers who have commanded S. & M. field companies for long periods during the war would like to see the organization of a company modified. To explain this, it is necessary to go into some detail.

Individual sappers in S. & M. may be divided into two categories:-

(a) Artificers, required for work requiring advanced trades, skill, which is generally done in areas of comparative safety.

(b) Ordinary sappers, required for general military engineering jobs, which often demand strength and handiness rather than trades, skill and which often had to be carried out under dangerous conditions. It is, however, important for such sappers to have some trades, knowledge, as they may be required to help the artificers and because a knowledge of a trade, however slight, makes a sapper more handy at his work.

In India, trade work is done by special castes-turkhaus, lohars, kumbhars, mochis, etc., which have a lower social status than the agricultural (military) classes and are generally inferior to them in physique and stamina; traditionally the former are not fighting men, and their social status acts against their authority as N.C.O's. \*They are harder to recruit and need better pay to attract them from civil life where they earn good wages. It takes, however, longer to turn such recruits into good artificers than to train a recruit of agricultural class for ordinary sapper duties.

On the other hand, a recruit of agricultural class, though for ordinary purposes he makes a better sapper than a trades, caste man, never really becomes a skilled tradesman.

But it must be admitted that, as least as far as P.M. and Sikh kamins are concerned, such men during the late war have often

shown great courage and, having proved themselves fighters, have gained the respect of their higher class comrades as N. C. O's.

Now a field company S. & M. is supposed to consist of four sections with the artificers scattered among them. During 1914 and 1915 when S. & M. companies were put into action rather frequently as infantry, many casualties occurred among artificers who could not be replaced. Even their employment on normal sapper work in dangerous areas was found too costly. As a result of this and also because it was found that the artificers generally worked outside their sections, most companies created a fifth or headquarter section, in which it concentrated its artificers and also such men as were not required with the other sections—company havaldar major, quartermaster havaldar, clerks, etc. This section was kept as far as possible out of the danger zone; when a section was detached for work requiring artificers, some of the latter were attached to it from the headquarter section.

It is believed that most company commanders would like to see this organization made permanent. But as a field company is a very uneconomical unit and as a section, less its quota of camp duties and its artificers, produces a very small working party, it is suggested that the four sapper sections should be kept at their present strength (3 N. C. O's and 40 lance-naiks and sappers) and the headquarter section added to the company. It may be noted that the mixed nature of the headquarter section has not produced cooking difficulties in practice.

Each of the four sapper sections should be under the command of a jamadar, assisted by a section havaldar (this would mean an additional jamadar). The havaldar major would be in charge of the headquarter section and the subadar generally responsible for the discipline of the whole company.

#### **(4) Completion of recruit training in depot companies.**

A sapper recruit cannot be said to have completed his recruit training till he has passed through his recruit courses in drill, musketry and fieldworks and his preliminary trades, class. In pre-war days, the authorized strength of the depot company

### ***Some Further Remarks on Sapper and Miner Organisation.***

enabled him barely to complete the first three subjects ; he had to do the fourth while with his field company. This reduced the efficiency of the field company and interfered with its company training.

It would be much more satisfactory if the preliminary trades, class were recognized as part of the recruit training, to be done in the depot company and the strength of the depot company increased accordingly.

#### **(5) Training Grants**

Great difficulty used to be experienced in pre-war days by company commanders in training their company as a whole in military engineering ; the reason being, as Major Stoechr points out, that real military engineering nearly always means the expenditure of material, and the training grants of corps and detached companies were insufficient to cover the expense. This is particularly noticeable in bridging, hutting, etc.

The carrying out of a fair-sized field engineering works involving design, the supply of material, preliminary artificer work and erection is an excellent form of training for both officers and men ; and it is most desirable that training grants should be large enough to enable each field company to carry out one such work yearly.

E. V. BINNEY, *Major R.E.*

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## **“REVUE MILITAIRE GENERALE”. (Paris). MARCH 1920.**

The month's issue contains, three articles, and an appreciation of the defence of Verdun in 1916 translated from the Norwegian.

### **1. A French Cavalry regiment in Palestine. By Commandant ‘H.C.’**

Those who were in Palestine towards the end of the war will remember the French “1st Levant Mixed Cavalry Regiment” which was attached to the Australian Mounted Division. The writer, who was evidently present with it, describes its adventures and achievements during the last three weeks preceding the Armistice with Turkey. The article is a tale of continuous attack and pursuit from Jaffa to Beyrout, and of the disproportionately large results secured by the dash and initiative of squadron officers in open warfare. It shews how boldly and properly handled cavalry were enabled to force defences held with artillery and machine guns; and how, amongst the regiment's other successes, the audacious bravery of two subalterns gained for their side a Turkish town, 2 guns, 9 machine guns, and 700 prisoners, at the loss of one horse killed:- Cavalry at its very best.

There is much food for thought in this article for those who, never having seen an appreciable amount of eastern warfare as it is today, imagine that cavalry as an arm is already dead. Incidentally the writer of the ensuing article appears to be such a one.

### **2. Forecasts. (“Extrapolations”). by Captain Merat.**

The writer attempts to forecast the warfare of the future; by tracing the development of each combatant arm of the service through the last war, and then estimating their further development in the times to come on the assumption of an even rate of forward progress.

In the main, his theme is that the wars of the future will be entirely contests of materiel and not of men: industrial mobilisation and organisation being developed to the highest degree, whilst the human forces in the field will be cut down to an irreducible minimum required to man the engines of war. He classes the various arms in an order of superiority from aircraft to cavalry;



and, after indicating how those lower down the scale must eventually become useless in the face of those higher up since they can only meet them on increasingly unequal terms, he foresees the eventual abolition of the inferior arms, and the survival of only the fittest as means of waging war.

His views are refreshingly long-sighted; but are obviously based only upon the western warfare on a crowded, flankless front. They take little cognisance of the eastern hemisphere, where distances are vast and important objectives relatively sparse, and no cognisance of countries such as even India which is still too poor and too undeveloped locally to have any army but one of men with a small complement of machinery.

It may be of interest to follow the writer's views on each arms in some detail: as set down by him.

Aircraft are given the pride of place, as the most superior arm in war. He agrees with Lord Fisher that the war in the air will dominate all other war by land or sea; and meditates as follows:-

- (a). Aerial bombardment will entirely replace the heavier types of artillery.
- (b). Aircraft can not yet, and possibly never may be able to, carry supplies and munitions in sufficient quantities to hold captured territory; but it is for debate as to whether they will one day be able to strike so hard at vital points as to bring about the enemy's surrender without the necessity of occupying his country.

Next in order to Aircraft, the author places Artillery in Attack. His theories regarding this are:-

- (a). It will consist entirely of tanks, because these will eventually replace infantry altogether; and, in consequence, no light artillery will be necessary in attack. (Heavy artillery already replaced by aerial bombardment).
- (b). Tank duels will replace former artillery duels in, and prior to, the attack.

- (c). In respect of tanks replacing infantry: they have the same mobility and power of manoeuvre, with far greater striking force; and so can hold captured ground equally well, as well as attacking.
- (d). There will be many types of battle tanks: representing to a certain extent each of the present combatant arms: the future battles between tanks on land will have a great similarity to a modern naval battle with all its different types of battle craft afloat.
- (e). In general: the whole bulk of the future land forces will consist of tanks.

Third in order of superiority, the author places Artillery in Defence. Here his theories are:-

- (a). Anti-Tank artillery will always be a vital element of land forces: and it must have far greater mobility than at present in order to be able to keep pace with future tanks. It will be a supplement to tanks when they are on the defensive. There must also be anti-aircraft artillery.
- (b). In this connection, Permanent Fortification will be reduced to the minimum necessary for protecting tank forces and aircraft when on the ground from surprise attacks. It may consist of huge protected subterranean aerodromes and tank barracks. Field lines of trenches have already been killed as a defence, by tanks.

Fourth, and last but one in superiority, the writer places Infantry. He considers that they are no longer the prime arm of battle to whose aid all accessory arms and machinery must be designed; and foresees that in the future they will no longer be the only arm by which a final decision is possible, since this will be obtainable by other arms such as aircraft and tanks. His detailed views are:-

- (a). The proportion of infantry to other arms in any field forces has been steadily decreasing for years.
- (b). As time goes on, the infantryman has more and more difficulties to contend with in the way of engines of war employed against him.

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- (c). Correspondingly he himself has to be equipped more and more with new devices to protect himself and to strengthen his attack and defence:- bombs, machine-guns, trench mortars, etc.
- (d). Partly owing to his increased equipment and armament, and partly owing to the wider fronts and necessity for quicker movement to important points: it is already beginning to be accepted that the marching power of infantry, so important of old, is no longer vital; and that they must have lorry transport ready for themselves and their armament.
- (e). In the future, therefore, the Infantry, magnificent as they always are, will have so much required of them in carrying special armament and protection, and such vastly superior armament and devices up against them; that a limit will be reached beyond which there is no going. They will then disappear, and leave it to the superior arms to fight it out amongst themselves.

Last in order of superiority, the writer places Cavalry. That arm he regards as already dead (“a terminé son épopée”); replaced by aircraft in reconnaissance, and by whippets and armoured cars in action. He would certainly benefit by a visit to the frontiers of the many eastern countries that will not be in a position for years to come either to afford masses of whippets and armoured cars or to keep them supplied in long actions.

In summing up generally, he does not foresee any great changes either in strategy or in grand tactics; save that the geographical frontiers of countries will assume even a greater importance than hitherto: since where of old they could be contested all along, in future they will only admit of the passage of Tank Armies at certain points, round where the opening contests will rage.

In the main: he foresees these future wars of concentrated Industrial and Munition mobilisation as was in the air, with wars of tanks on the ground to deal with anything that the aircraft have not been able to touch.

On the whole the article savours of Jules Verne: not in any way as a fantastic creation; but as the creed of a man who has watched modern development closely, and of whose predictions as many may eventually come true as did of Jules Verne's, although at the time they were scoffed at by most practical men.

**3. The transformation of the German Army during the first year after the Armistice By Jean de Thonaque. (2nd instalment).**

The current instalment is taken up with an examination of the Reichswehr, from its inception up to the 11th November 1919. This examination is conducted in great detail, with many accompanying tables of commands, organisation, brigades, strengths of formations, etc.

The writer goes far to prove that the Reichswehr is nothing but the pre-war German Army: in a transitional stage, but not one of transition to the forces envisaged by the Peace Treaty. The transition consists of the preservation to the utmost of all the traditions of the old army, of as much of its personnel as possible, especially of its Officers' Corps: so that the Reichswehr may eventually be a perfect nucleus in all respects for a permanent conscript army of unlimited size on the old lines.

It is interesting to note that all its officers, with the sole exception of 30% of its 2nd Lieutenants who are to be rankers who have qualified in military examinations, are to be substantive officers from the old army. As regards the men: the semblance of a voluntary force with short periods of engagement is kept up: the end in view (permanent service) is maintained by a practically unlimited permission to re-engage any number of times, at rates of pay and allowances which correspond more nearly to those of pre-war subalterns than those of pre-war other ranks.

Careful steps have been taken to preserve the old standard of discipline: equal care has been given to the selection of the rank and file as far as possible within the Peace Treaty terms, and outside them as far as is dared.

In summing up the present instalment, (the article is to be continued), the author states that:-

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“The Reichswehr, 200,000 strong, is an army organised on Prussian lines and with a largely Prussian cadre: its spirit is pan-German and reactionary. It is the willing and redoubtable tool of a minister pledged most thoroughly to the Militarist party”.

The details of the writer's investigation may be left to those who are interested to study minutely: in general the article bears out completely the theory that however much Germany's internal troubles and Bolshevik diseases may at present be interfering with her carrying out of the Peace Treaty terms, equal delay and resistance is being engineered by the surviving reactionary elements in the German Government itself.

**4. A Norwegian opinion on the defence of Verdun in 1916. By Captain J. Ravnsborg. Norwegian Army. (Translated).**

There is not much of general interest in this article, save that in the main it goes to prove, as is well known in the case of Verdun, that it is still possible to construct permanent fortifications which will resist even the concentrated attack of modern heavy artillery.

Whether it is worth while, as it is possible that nowadays such forts might be blinded by cordons of tanks and then starved or gassed out behind the fighting line, is for future consideration.

**5. Review. The Errors of our High Command, by General Percin.**

The errors quoted are those of 1914. Without the actual book it is impossible to render a sound account of its contents and merits: but the errors which permitted the invasion of France in 1914 may be interesting as a summary- They are, in the opinion of General Percin,:

- (1). Because the French underestimated the value of their reserve forces: a fundamental mistake which involved :-
  - (a). Greater expense to the State, by reason of the Three years' Service Law.
  - (b). The failure to employ the reserve formations properly at the outbreak of the war.
  - (c). The surprise sweep through Belgium by active and Reserve German formations.

- (2). Because the French plan of concentration was revealed to the enemy, in time to be of material use, through the imprudence of a French Staff Officer.
  - (3). Because the French strategy was at fault continuously until after the Battle of the Marne.
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**“REVUE MILITAIRE GENERALE” (Paris).  
April 1920.**

There are five articles in the month's issue, and one translation.

**1. A note on the first French entry into Mulhausen. by General Thevenet.**

A brief article, issued only as a correction to Captain Kuntz's article in the February issue in respect of dates. The latter recorded that the French 8th Corps entered Mulhausen on the afternoon of the 8th of August 1914, spent the 9th in taking up protective dispositions to the north and east, were attacked by overpowering German forces on the 10th, and retired during the night of the 10th-11th.

General Thevenet, writing in complete agreement with the general who commanded the French forces concerned at the time, points out that they really commenced the evacuation on the 9th at 2.0 a.m., fought successful rearguard actions with the Germans all that day, and completed their retirement from the neighbourhood in the night of the 9th-10th. He states that the importance of the correction lies in the fact that if the French had all the 9th to spare, they could have put up field defences, in which case their quick retreat would be inexplicable.

The present article only serves to accentuate the idea that the rush for Mulhausen was bad strategy, a premature invasion was bound to provoke counter attack by greater forces than it could withstand:- the view expressed by Captain Kuntz.

**2. The operations of the Cavalry in Lorraine (August-September 1914), by Colonel Monsenergue.**

A record of the covering advance by the 2nd, 6th and 10th French Cavalry Divisions from the neighbourhood of Lunéville towards the Sarre in front of the 2nd French Army. There is nothing of special interest: these divisions do not appear to have been very heavily engaged, and their forward movement ended when the repulse of the 8th French Corps in front of Gosselming took place simultaneously with the change from offensive to defensive of the entire 1st and 2nd French armies before the pressure of the German left wing.

**3. Artillery in defence: one of the causes of a defeat. By Commandant Perney.**

The article deals with the German attack on Soissons by the Ailette and the Chemin des Dames on the 27th May 1918.

The gist of it is that on that day, in spite of repeated indications and warnings of an impending attack, all the French artillery of every class was in position along a single line: instead of being echeloned in depth so as to be able to bring flanking fire.

The writer shews how the German attack, hopelessly superior in point of numbers, commenced by knocking out a great proportion of the French batteries; and then surged forward to the single approximate line of artillery, where it was easily able to put the surviving pieces and batteries out of action since there was no other artillery in rear or in echelon to deal with it.

The error is attacked as contrary to every principle of the text books as well as against common practice; and there are two maps: one shewing the artillery dispositions as they were, and the other as they ought to have been. The latter includes a complete second line of artillery in rear; but although it is doubtful whether the French had sufficient guns in the Soissons sector to allow of this at that time, the tactical omission of any dispositions in depth is well explained.

**4. Work of the 4th Branch of Army Headquarters:-  
Ammunition supply. by Commandant P. Raoult.**

This is a plea for a uniform system and control of ammunition supply, to be executed by the Army and not materially modified by Corps and Divisions.

The writer prefaces his article by instancing the extreme simplicity of the French ammunition supply at the beginning of the war, when very few types had to be dealt with, and the 75 mm guns had only two types of shell, one type of charge, and one fuse. He then dilates on the extraordinary complexity of supply in later days, when there were many more calibres in the field in great numbers, many kinds of shell, and a corresponding number of different cartridges.



He sums up the necessary ammunition dumps of the later days of the war as:-

- (a). Dumps for the 75 mm. and for S.A.A.
  - (b). Heavy Artillery dumps.
  - (c). Dumps for trench artillery, i.e., trench mortars, etc.
  - (d). Dumps for special shell, i.e., gas, poison, etc.
- each of the above dumps being subdivided into:-
- (i). Shell store.
  - (ii). Cartridge store.
  - (iii). Store for accessories: fuses, etc.

As he points out, the formation of Corps and Divisional dumps originated in the idea of maintaining a local reserve to afford independence of any temporary breakdowns in the Army supply; but he also states that they led to a great deal of waste, by the piling up of stocks of ammunition of types which were never required in many actions, many of which were consequently abandoned or deteriorated materially.

He holds the view that, given a carefully worked out daily maximum requirement of ammunition of all types per gun per day in all recognised types of action, it is only the Army which can assess the total requirements of a given front accurately. Consequently he maintains that it is the Army which should direct and control the entire supply: retaining complete charge of all dumps, and finding all necessary transport for ammunition beyond the normal complement of units.

The question of location of the different classes of depots is worked out by the writer on the basis of available transport: those for units only able to use horse transport being nearer the line, those for units possessing M.T. being further back, and any depots able to distribute by decauville track being situated anywhere in the best tactical situation.

All the author's theories are backed up by detailed examinations of facts and possibilities; and, in so far as the article is based upon and deals with only the crowded western front, he makes his points convincingly.

**5. The problem of breaking through. (i.e. on the western front).  
By Captain Hoff.**

A history in general terms of the various attempts made by both sides to breach a sufficient gap in the trench lines of the West to make tactical and strategical use of it by pouring troops through.

The author traces the course of the great attacks from the first battle of Ypres to the end of the war; and shows how the idea of forcing a workable gap was gradually given up, until the correct solution of the western front was found in the successive attacks at proper intervals upon each new line of defence: i.e., a process of crushing in a wide sector by successive steps, rather than the piercing of a corridor.

A point of interest is his condemnation, of the Germans at Verdun and of ourselves on the Somme, for having persisted in heavy attacks on intended gaps after the opposing forces had become approximately equal, and a decisive result was no longer to be reasonably hoped for.

**6. German opinions on the war.**

This is only a continuation of M. Forget's translation of General Von Freytag-Loringhoven's "Deductions from the World-War" which was given in part in the issues of the previous October, November and January; and need not be examined as the English publications is probably sufficiently well known.

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**NOTE:-**

*A criticism.*

If one may presume to criticise so well known a publication as the "Revue Militaire Generale": the issues of the first four months of this year centre largely on the war in the west. The bulk of the theories expounded are based on the intensive warfare of that front; and many of them give the impression that the theorists expect all future warfare to be of the same nature.

This is easy to understand, since the greatest and most astounding efforts of the French nation were made in that theatre and largely upon her own soil: but it must be remembered that no two wars are ever the same; and while later wars may introduce a wide complexity of new arms and features, they invariably embody also many characteristics of the older ones.

In the U.S.I. Prize Essay of 1918 the first lesson of the great war was given as "not to forget the lessons of other wars"; and although the war in the west has provided some of the most surprising developments in modern warfare, there has been a lot to learn in the campaigns of eastern Europe and of Asia during the same period.

In formulating general theories therefore: it seems advisable to take full account of all the different campaigns of the late war, and not to forget the lessons of older wars; which have been repeated day by day in certain modern campaigns, and whose force will hold good in every campaign in the future that is not one of immense forces and flankless fronts

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## **"REVUE MILITAIRE SUISSE",**

APRIL 1920.

There are three articles which may be considered in order, in addition to the usual chronicles and reviews.

### **(1). Some remarks on our military organisation. By Lt-Col Leuba.**

The author speaks of three portions of the Swiss Army as the Elite, the Landwehr, and the Landsturm: which may be taken as the equivalents of our Regulars, T.F., and T.F. Reserve respectively.

His article forms a commentary on Colonel Sarasin's recent writings on the same subject, and is in the main a severe indictment of the present Landsturm in respect of both its composition and its duties. According to the author the Landsturm's duties at the outbreak of the great war were:-

- (i). Holding the Frontier as covering troops.
- (ii). Protection of the railways.
- (iii). Protection of military establishments, arsenals, etc.

For this task he maintains it was utterly unfitted, both in strength and in personnel. As regards numbers, he instances a battalion having to hold fifty miles of front as well as guard thirty miles of railway; as to personnel, the majority of its men had done no military duty for ten or fifteen years. His chief attack is directed against its officers and the consequent absence of proper command: in respect of the former he leaves little to the imagination in remarking that "The Landsturm had most unfortunately been regarded as a kind of dumping ground for any undesirable or alcoholically inclined members of the Elite and the Landwehr". He reckons seven days as the period for which this indifferent corps would have to hold out unaided against invasion.

Passing to constructive criticism, three alternatives are proffered:-

- (a). Retaining the Landsturm in its present organisation, but making good all its deficits in training, personnel, and equipment; or
- (b). Reorganising it completely, on a different basis; or
- (c). Abolishing it, for reasons of economy.

Following the probable trend of events, however, which appears to favour reduction of forces with an increase of actual efficiency: the author foresees the creation of a proper body of independent covering troops for the frontier, composed impartially of Elite, Landwehr, & Landsturm, and amounting practically to Area Troops of all arms and classes. Such a force should, in his opinion, be capable of holding its ground satisfactorily until the armies of operation behind it have concentrated and taken the field along selected lines of defence.

Concerning the general question of military reduction which is now somewhat to the fore in Switzerland: he expresses, in the course of what is rather an outspoken article, the view that a strong and effective army is nowadays essential to his country; and that it had better have no army at all rather than one which would be an army only in name.

## **2. Military Training and competitions. By Captain De Collogny**

This article falls into two distinct parts: the first a strong advocacy of physical fitness in the Army as a guarantee of mental alertness; and the second suggesting sample tactical exercises for ski patrols and methods for judging accurately the quality of their performances. One is tempted to suspect the author of being a genuine enthusiast for military ski work who has deemed it necessary to preface the exposition of his hobby by a somewhat weighty introduction upon general grounds.

From "*Mens sana in corpore sano*", he passes to the advantages of voluntary manoeuvres and tactical exercises and military sport: at the same time stigmatising the Swiss Government for a deliberate lack of support of private enterprise in this respect which amounts to repression. If his facts are correct, certain officials have a good deal to learn from us in the organisation of assaults at arms, army sports meetings, etc, with their great benefit to the army as a whole.

Leaving the general subject somewhat abruptly, the author gives instances of tactical schemes for ski patrols, with a rather elaborate form on which their work may be recorded and judged; this portion of the article being of much local but little general interest.

**3. The new Army of Hungary, by Captain Cuno Hofer.**

The author throws a most interesting light on the endeavours of Admiral Horthy to revive a national Hungarian Army in the face of all the contingent difficulties in a defeated and dismembered country and of the poison of Bolshevik propaganda.

He traces the course of events from the end of 1918, when the returning armies of Hungary found in the Karolyi government a cabal fully primed by communist Russia to abolish the last traces of national military sentiment, and pledged to leave Hungary undefended and open to every permeation or invasion of the Bolsheviks. In February 1919 a small band of officers of the old Army at length succeeded in forming a union whose chief aim was to arrest the literal decomposition of the nation: these were the embryo of the miniature army of today and of the possible forces of tomorrow.

Captain Hofer next shews us how that small clique, suppressed by Karolyi, expelled from the country they had defended for five years by Karolyi's successor Bela Kun, continued their efforts when and how they could, not without British aid; until today, under the sustained guidance of Horthy, they have actually reorganised an actual force, an army in smallest miniature, but one of infinite possibilities in the future for the defence of Hungary.

In regarding a Bolshevik invasion of Hungary as a danger to all Western Europe, the author speaks with enthusiasm of Horthy's endeavours; and writes in most refreshing contrast to the similar articles in similar journals regarding the efforts to revive the army of Central Europe. His article is noteworthy, in possessing as much political as military interest.

As a detail, he has a good cliché of the Bolshevik soldiery:-  
"These folks can get under way, and they can obey orders: it is for them the best if not the only way of getting anything to eat, of getting money, and of satisfying every need of man with the single exception of his need to work."

**Chronicles.**

In the Swiss chronicle there is bitter criticism of the decision to abolish the Soldiers' Libraries by transferring all the books which had been systematically presented to them during the war,

to Public libraries. This may be an offset of the general economy which Switzerland is effecting in all military matters, but it is a curious step to take at a time when the great value of better education is being so fully and practically realised in most of the larger European armies. At the same time it is interesting to note that an attempt is afoot to nationalise the military library of the Headquarters General Staff by including it as part of a general scientific library: its annual grant being simultaneously cut down to 6,000 francs.

The newly appointed head of the Swiss Cavalry, Lt-Col Favre, receives a commendatory welcome to his appointment, with an injunction to concentrate upon bringing military training up to post-war standards:—a task which his predecessor is stated to have neglected.

The French chronicle is occupied with a discussion of the reorganisation of the system of High Command, which was brought about by the decree of the 24th January 1920. The new system may be described for the benefit of those who have not yet read the decree. It amounts to the following:—the Army in peace is administered by a War Council, whose president is the War minister, with the War-Commander-in-Chief-designate as vice-president. The rest of the council consists of the French Field-M Marshals, and up to ten senior generals, amongst whom must be the Chief of the General Staff. The latter is Chief of the Staff also; and is responsible to the Council for organisation, training, mobilisation, armament, defences, and all Q.M.G.'s duties: the Council giving of course final decisions if necessary in the person of the war minister.

After suggesting that France would have done better to concern herself first with the better training of her actual troops before reorganising the Higher Command, the author makes his most pertinent comment: which is that in practice the Chief of the Staff is likely to prove so paramount in the Council that a serious misunderstanding between himself and the C-in-C-designate might wreck the whole machinery. The members of the Council only hold office, however, for a year unless re-appointed. As regards the actual members of the present (1920) Council:

the author foresees everything that is best, since in his opinion Pétain, the C-in-C designate, and Buat:—the Chief of Staff, may be relied upon to work with the completest unity of purpose.

The constitution of this year's Council may be interesting to those who have not yet seen it: it is as follows:— Vice-president (C-in-C-designate)..... Pétain.

Marshals of France;— Joffre, whom the writer expects to preserve all the best, and none of the failings, of the old régime.

Foch: where comment is unnecessary as he is the winner of the greatest war in the world.

Pétain: also vice-president: a brilliant soldier both in peace and war.

Ten Senior Generals:— Humbert, Maistre, Berthelot, Guillaumat, Nivelle, Mangin, Debeney, de Boissoudy, Degout; and Buat who is Chief of the Staff.

The absence of Fayolle from the list is noted, with the hope that he will not be long out of it.

A noteworthy feature of the list of thirteen is that no less than nine are infantry generals, three gunners, and one sapper: so that for the present year there are no cavalry representatives.

#### **Notes and Reviews.**

There is nothing of particular interest in these concluding portions of what is a more than usually interesting issue of the magazine.

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## **REVIEWS.**

### ***Reflections on the government of wild tribes of the north-eastern frontier of India.***

Paper read by Lieut-Colonel John Shakespear, C.M.G., C.I.E. D.S.O, before a meeting of the East India Association on the 15th of December 1919, and reproduced in the "Asiatic Review".

The "Asiatic Review" is to be congratulated on its choice of this paper for reproduction. Not many men can speak with such authority as Colonel Shakespear on the subject which he has dealt with; and probably few could invest the matter with so much interest in so restricted a space.

The author opens logically with an explanation of the origin of British rule in a dangerous, thankless, and comparatively unremunerative region: that is, for the protection of our own peaceful borderlands from external attack. Next comes an introspective review of the aspect of our rule, from the widely differing points of view of rulers and of ruled. Lastly follows the bulk of the lecture, consisting of a most interesting description of the working of the rule in practice, very fully interspersed with minor principles and anecdotes in illustration.

It will be refreshingly new to some to learn how fundamentally the governing and administration of these wild and barely civilised territories differs from that of the well-ordered districts of British India proper. Many years must elapse after conquest before even the suggestions of red-taped régime can be applied to the wild folk: in the interval the procedure must be what Colonel Shakespear quotes as his first orders:— "To govern with equity and good conscience, untrammelled by rules, laws or conventions." Could any better precept be given to a man entrusted with the rule and guardianship of a primitive but intelligent people?

Simple men, simple dealings, forms the keynote of the lecturer's orthodoxy; and his text is rich in illustrations of how it meets with practical success. The picture of a Political Officer solemnly presiding at sunrise at a Trial by Water savours more of the days of King Alfred than of the times we live in; but the lesson is there all the same:— meet the people on their own ground, and peace and justice will be assured without armies.

Colonel Shakespear's paper is amongst other things, a study of what character and personal influence can effect without the aid of laws or force; and in reading it one's mind strays back instinctively to the methods and achievements of Nicholson and of John Jacob. Whilst intended rather as an explanation, it is a fine tribute to the British Raj which will be appreciated by every intelligent reader.

Following the paper is a report of the discussion on it by the members of the Association present. This discussion is not without interest: it bears out the theories enunciated in the paper; and, in the words of one speaker, summarises them aptly as wise and statesmanlike.

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## **Reviews.**

### ***The Journal of the Central Asian Society***

*Contains three articles, which were delivered as lectures to the members of the Society.*

1st Article. "Bolshevism as I saw it at Tashkent in 1918", by Sir George Macartney K. C. I. E.

In the first article Sir George Macartney, who was Consul General at Kashgar when the Tsar abdicated in March 1917, describes the genesis of Bolshevism in Tashkent and the efforts made to spread that pernicious doctrine in Ferghana, Bokhara, and even in China. He describes the sending of a British mission to Tashkent in July 1918, to keep Government au courant with events there. This mission under Colonel F. M. Bailey C. I. E. met with a decidedly cool reception from the Bolshevik authorities, but no untoward incident had occurred when Sir George, who had gone to Tashkent to officially introduce the mission, left ~~that~~ place on his return journey to Kashgar. Bolshevism at that time had not taken virulent form which it afterwards developed although a reign of terror undoubtedly prevailed, Colonel Bailey remained in Tashkent to carry on the work of the mission but the article does not deal with his subsequent adventures. His movements were shrouded in mystery until he reappeared at Meshed in January this year.

2nd Article Cyprus by Mr. Roland Michell C. M. G.

Mr. Michell commences by giving a description of the Island from a historical and physiological point of view. He describes ~~Greek~~ acquisition of Cyprus in 1878 from the Sultan of Turkey subject to an annual payment of £92,800. A condition of the convention, which was meant as a counter-poise to Russian aggression, was that Cyprus would be evacuated if Russia should restore to Turkey. Batum, Kars and Ardahan (her conquests in Armenia).

He points out what a burden this tribute of £92,800, has been, in the development of the Island, and also shows how the systematic obstruction of the Greek element has hindered progress. These Greeks, who are not Hellenic subjects, and who have received no encouragement from Greeks outside Cyprus,

but led by legal element in the towns, conducted an agitation for union with Greece, although such union would be bitterly resented by the large Muslim community.

The future of Cyprus is discussed in the record portion of the article, and the author condemns any cession of a point of such great, and probably increasing, importance in our line of communications with the East. The geographical position of Cyprus, in close proximity to Asia Minor, Syria, Palestine, and Egypt is held to be a conclusive argument against abandonment of the Island as its acquisition by any potentially hostile nation, would form a serious threat to our strategical position.

3rd Article. "The organization of British responsibilities in the Middle East" by Capt. Hon. W. Ormsby Gore M.P.

This lecture was delivered on the 18th. February 1920 and is of considerable interests to students of the Middle East, but the situation there has altered very considerably since the delivery of the lecture, and allowance must be made for the altered conditions now prevailing.

Since 1916 the lecturer has been officially connected with political matters in the Middle East and speaks with intimate knowledge of the question. He deals mainly with Palestine, Syria and Mesopotamia, but Persia is only briefly referred to. The scope of the lecture is defined as being "not so much the immense military problem presented by this new frontier, as how we are to organize the administration, development and political relations with the inhabitants of the area lying within this new frontier."

The Kurds are first considered, and their lack of homogeneity is emphasized as showing the difficulty of solving the problem of how to deal with widely scattered semi-nomadic tribes. The question of an Arabian Empire is considered and discarded as unpractical, as any attempt to force the Arab under any one suzerainty is doomed to failure owing to their nomadic instincts and resentment of all control. The desire of most Arabs is to live their own lives in their own way, and their present unrest is largely the result of the fear that they will be subjected to European rule.

**Reviews.**

The effect of Sionism <sup>in</sup> Palestine is discussed, and the difficulties in connection with the movement are enumerated. As regards Mesopotamia the possibility of encouraging Indian immigration is considered and the author points out that the Indian, whether Mohammedan or Hindu, does not mix well with the Arab, so that the development of Mesopotamia must be limited by the natural growth of the existing Arab population, with a possible increase in the number of Persians and Jews.

He considers that the economic development of Mesopotamia should be carried out more by private than state enterprise.

The remainder of the article is devoted to a consideration of the provision of a British Civil Service for the middle East, which he advocates should be provided by recruitment direct from Home not from the Indian or Egyptian Civil Services. He also advocates the establishment of a perfectly independent department at home for the management of the affairs of the Middle East, independent of both the Foreign or Colonial Offices.

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## ***Review of "The Army Quarterly," October 1920***

We welcome the appearance of the first number (October) of the "Army Quarterly," published by Messrs Wm. Clowes. The size, printing and general arrangement closely resemble the "Quarterly Review," and the prices of both are the same, *i.e.* 7-6 per number. Major General Hugh Dawnay is the editor, and his record and reputation are already so well known to military readers, that it is unnecessary to refer to them further. He is supported as assistant editor by Lt. Colonel Headlam.

Any great physical or mental effort is normally followed by a period of lassitude and inertia, and after a great war this reaction, with proper guidance, ought to be followed by a period of renewed effort and study. Most soldiers have come through the war with very definite convictions based on their personal experiences; and there is a danger that wrong conclusions may be drawn from incidents in the past. Military Science moves rapidly in these days of mechanical invention, and we must beware of the enthusiastic specialist who professes to have found a panacea for all military difficulties, in any mechanical development of the recent war. Such writers are apt to regard the war in Europe as a sealed pattern type, which will be reproduced in the future, wherever operations take place. The armies of the British Empire have to prepare for warfare under widely differing conditions, and it is in fitting ourselves for the manifold tasks that may fall to our lot in the future, that we require assistance, such as is afforded by military literature. Our convictions require examining and strengthening in the light of the knowledge to be gained by the study of the vast amount of practical experience regarding every type of warfare, under almost every conceivable diversity of conditions, which is now being made available to us. National reflection on the vast possibilities of mechanical inventions in the evolution of military science impresses on us all, the need for constant and progressive research.

This research requires to be properly organised and directed for as St. Paul says:— "if the trumpet give an uncertain

**Review of "The Army Quarterly."  
October 1920.**

sound, who shall prepare himself to the battle." In this work we in India must take a constructive part.

The aim of the "Army Quarterly" is to provide a forum for the discussion, explanation, and review of all military affairs. It sets out to combat the optimism of ignorance, and rightly points out that the outlook of a military general need not be militarist. As we know, the Army is the instrument of policy, which it is the function of the statesman to ordain, and the "Army Quarterly" consequently will not deal with general policy, but only with military policy in relation to general policy. No means will be left untried to prevent the re-establishment of the old barriers between the Army and the civil population. The editorial concludes with a statement that every endeavour will be made to secure periodical articles from the the Dominions and India, which should have the effect of keeping military opinion throughout the Empire in touch with the views of those serving in the outposts.

4. To turn now to the articles themselves. In the first article Lord Cavan summarises the principal tactical and strategical considerations of the Italian Campaign in 1917-18, during which he held an important command and about which he writes with the authority of first hand knowledge.

The second article concerns the staff. This is an interesting and instructive article dealing with the subject in a fair and impartial manner, the word "staff" is here used in its strictly legitimate sense to indicate the difference between the "pukka" staff and the personal staff, specialists or other officers who were given a staff grading during the war. The writer goes into the reasons why the work of the staff during the great war has been, outside a very limited circle, so little understood or appreciated. Those who have not served on the staff are far too much engrossed with the terrible and glorious experiences of themselves and their friends to worry about the creators and drivers of the vast organism into which they found themselves absorbed, or the compilers of the wonderful little manuals on which it was

trained. The evolution of the General Staff from its inception after the South Africa war is traced, and the magnitude and complexity of the tasks dealt with during the war are emphasised; the mistake of denuding the central staff at home on the outbreak of war of most of its best officers is commented on, and the difficulty of keeping up the supply in the field owing to casualties and the enormous expansion of the army is made clear.

The Article on "The Territorial Force's" by Lt. Col. the Hon. S. Peel is a temperately written article expressing the views of the Territorials towards the future reorganized army. He points out that the Territorials look at soldiering from a different point of view to regulars, and require different treatment.

Military readers will be interested in "The Evolution of a Revolt" by T. E. Lawrence of Arab fame as showing the mentality derived from a superficial study of military science. The author appears unable to grasp the fact that "absolute" war as discussed by Napoleon, Clausewitz, etc, was never meant to apply to guerilla warfare waged in a friendly desert country, and conducted by Arabs who would not endure casualties, and who had nothing material to lose.

Mr. Belloc in "The obstacle of the Somme Valley," gives an historical account of its effect in various wars of the past.

Lieut. General Sir N. Birch under the title "Artillery development during the great war" divides his subject into 3 heads:—

- (a) The necessary artillery and its rôle;
- (b) Organization and Staff Machinery;
- (c) Scientific progress;

finishing up with some useful deductions on the future development of artillery

Colonel Fuller, the well known writer on "Tanks" has a carefully thought-out article on. "The foundation of the science of war". He divides his subject into:—

- (i) The method of science;
- (ii) The element of war;
- (iii) Grand tactics;



**Review of "The Army Quarterly,"  
October 1920.**

- (iv) The Principles of war;
- (v) The Conditions of war;
- (vi) The Battle;

The matter is, of necessity, briefly dealt with but contains much carefully reasoned knowledge.

"Aircraft co-operation with infantry" is described by wing Commander Charnier. He traces the development of this co-operation from the early days of the war onwards, and discusses the various methods devised during the war to overcome the difficulties inherent in communicating from the ground to the air.

Of special interest to readers in this country is the article "India at the cross roads". This article opens up a large question, which requires the serious consideration of all thinking people in India, both Civil and Military. The views expressed are unquestionably of a controversial nature, and the deductions reached on certain points may be considered as open to argument.

The article "Education in the Army" is written by an expert who had much to do with the re-settlement of demobilised soldiers in civil life, and the views expressed are thoroughly sound.

The remaining articles:—

- (a) The Flanders Battle- Ground;
- (b) Bernhardt on reforms in organisation;
- (c) Some war records of the British Infantry, are all interesting, but require no special comment as their titles describe their contents.

At the end is an appendix giving the stations of all regular British units with the names of their commanding officers.

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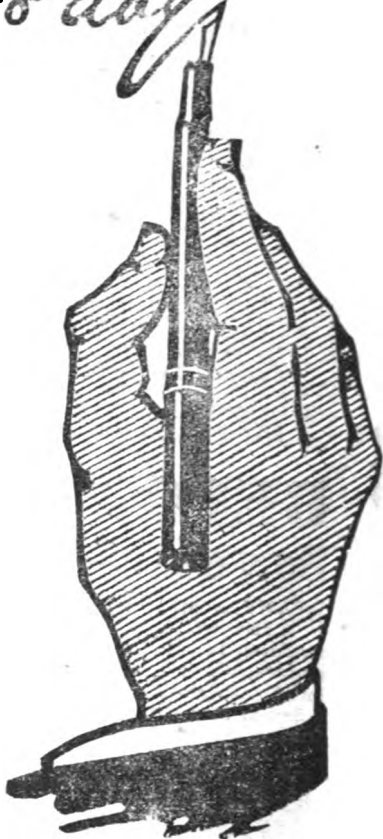
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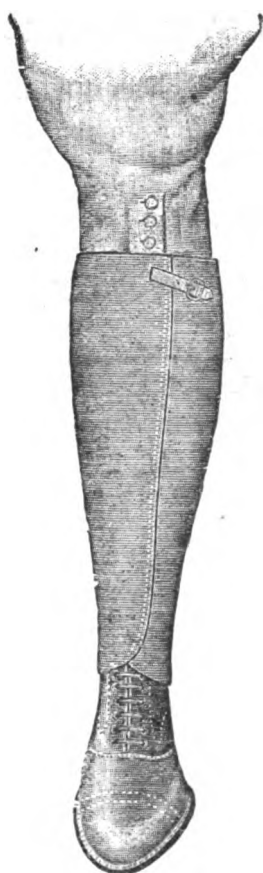
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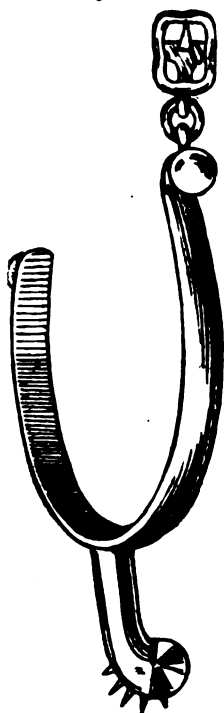
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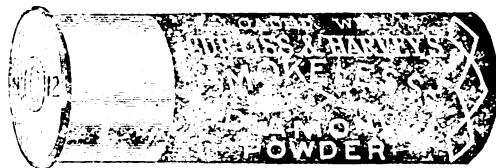
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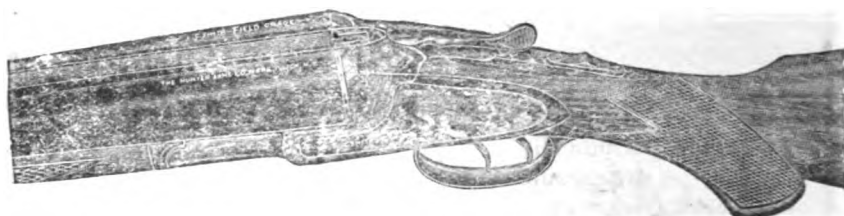
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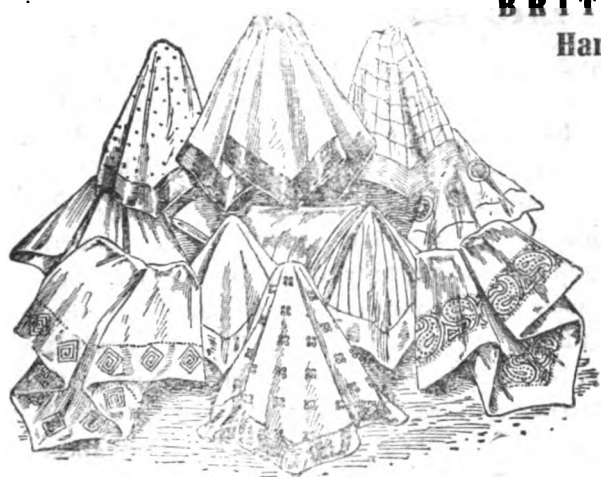


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